

TEMPLE HUNTING IN CENTRAL AMERICA

BY

ROBERT A. SMITH, F.R.O.S., A.R.Ae.S.

The author is an Englishman, born in London, where his father still lives. During the war he served first in the R.A.F., and afterwards as photographic officer of the Canadian Air Force with rank of Pilot Officer. He has flown over 3,000 hours on aerial photographic survey work. The photographs were taken with Fairchild cameras.

WHAT would an exploration expedition be without its guns, machetes, assorted knives, field glasses, and the like? Certainly, no matter what the prospect of using these lethal and semi-lethal implements on an excursion into the wilds, they are appurtenances which cannot be omitted from the explorer's equipment. But Cuban customs officials have their own pet notions about the utility of firearms and cutlery; the things are too closely associated with Latin-America's special brand of political disagreement to be regarded as useful for anything but revolution.

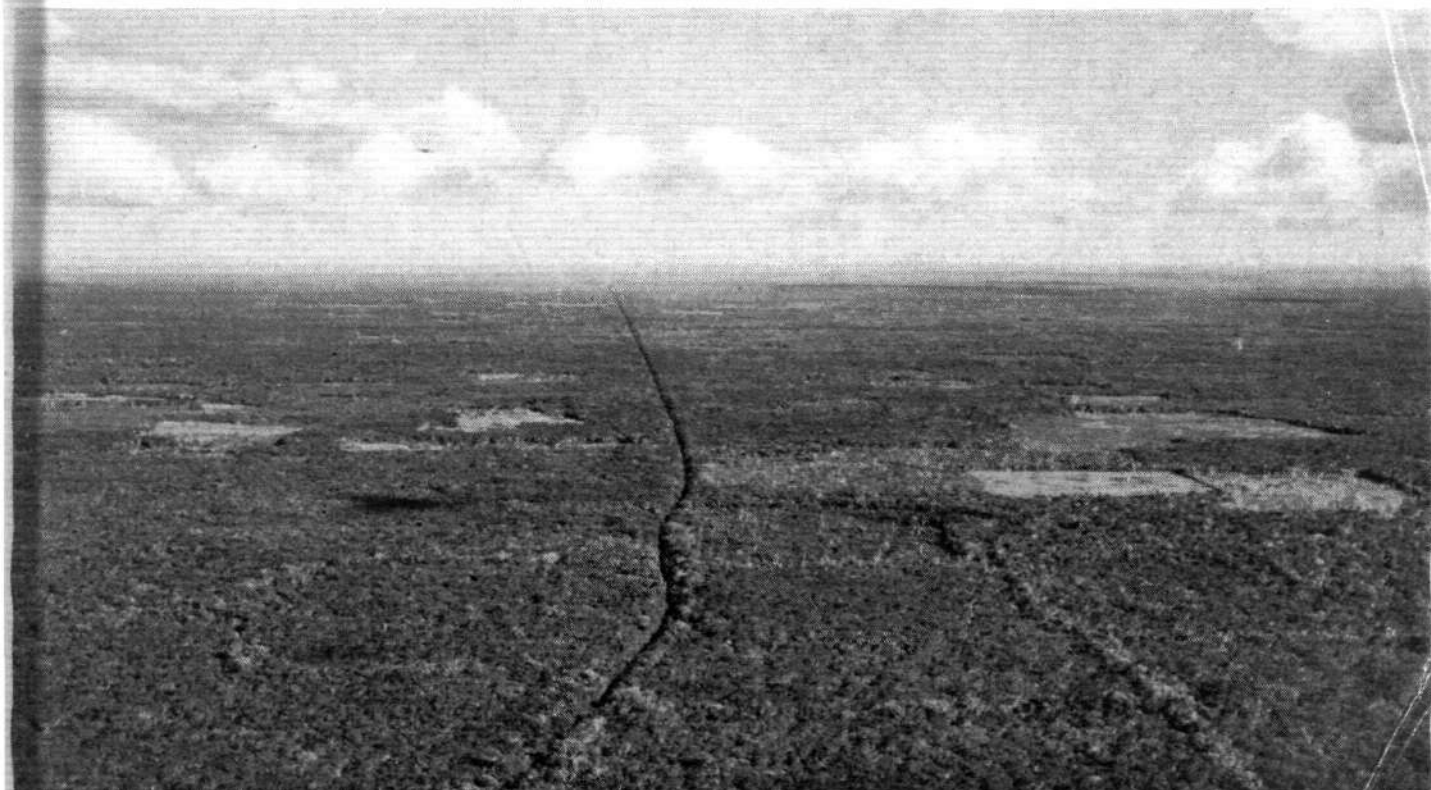
Because we neglected to investigate the condition of Cuba's politics on the day we took off at Miami, we did not suspect the surprise awaiting us when we landed at Havana. Nor did we imagine, as we calmly (perhaps naïvely) dumped out our armament for customs inspection, that we had suddenly and unwittingly become menaces to the incumbent rulers instead of explorers. But we soon learned what Cuba thought of us. The customs officials simply confiscated our artillery and knives, and promptly lugged them off, so we wouldn't take sides in their own private dispute.

Whether or not during the night someone took the pains to expound to them the difference between explorers and revolutionists, I don't know. But early the next morn-

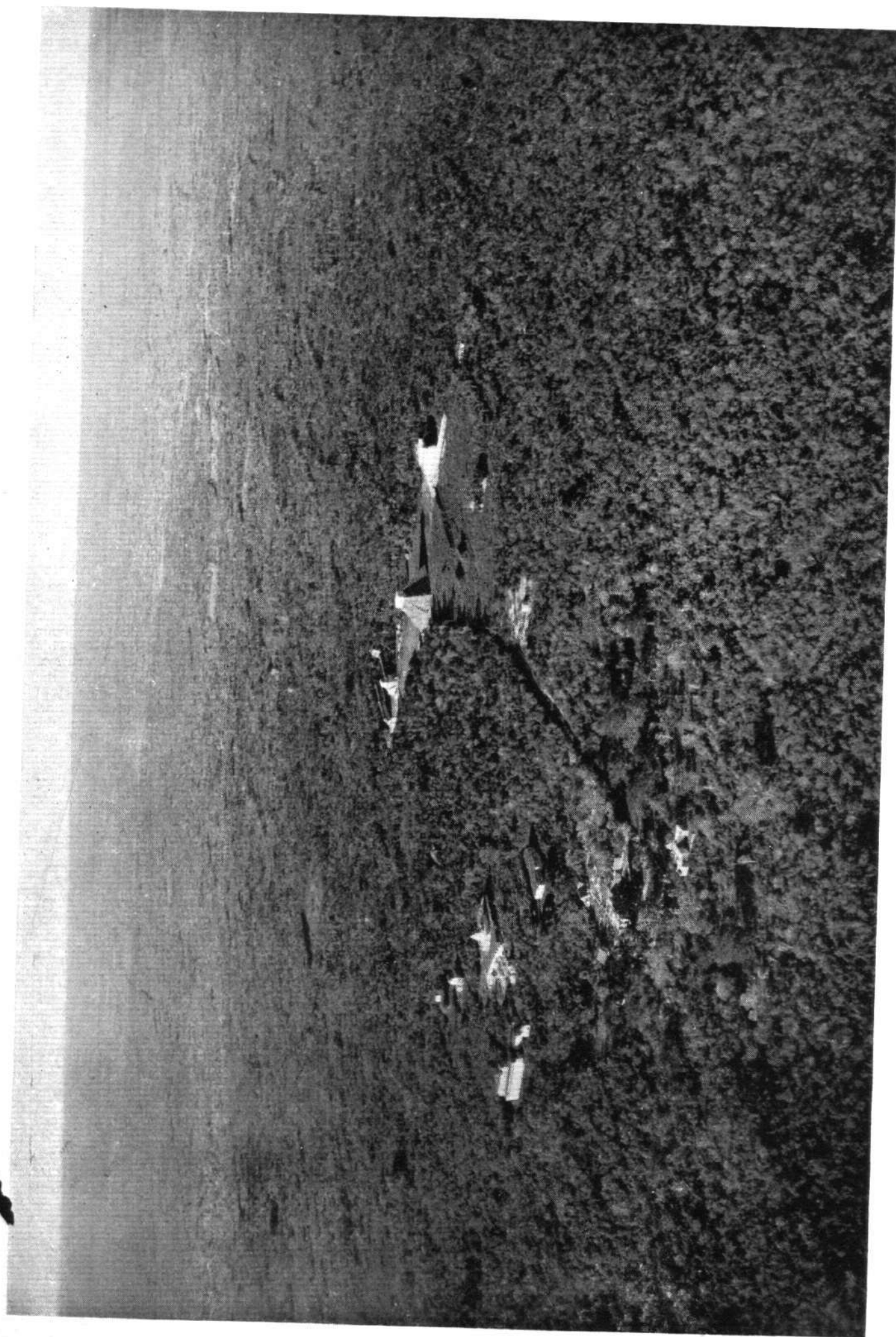
ing all our cutlery was returned to us as we prepared to take off on our way to Northern Yucatan, Guatemala, and British Honduras in search of ancient temple ruins.

Our expedition to locate and photograph these old Mayan remains was sponsored by the University of Pennsylvania. We left Miami, December 2, in a twin-engined Sikorsky S-38 amphibian belonging to Pan American Airways. Our party included Gregory Mason, the explorer; J. Alden Mason, curator of the University of Pennsylvania Museum; Percy C. Madiera, Jr.; Capt. Frank Ormsby, pilot; William H. Carey, co-pilot and radio operator; and myself as photographer. In all, we covered approximately 8,000 land miles, finding and photographing several previously unknown Mayan temples.

After our little episode with the Cuban customs inspectors, we left Havana at 7.47 on the morning of December 3, heading east over the ground fog, and landed one hour later at San Julien, at the eastern point of Cuba. This is one of the petrol stations of Pan American Airways. Refuelling here, we left again at 9.36, and crossed the Caribbean Sea to Cozumel Island, on the north coast of Yucatan, which, after a round of chicken sandwiches and hot coffee, and a few minutes' sleep to alleviate the monotony of the uninteresting floor of water below, we crossed at 11.09 near Cape Catoche.



Modern trail from Valladolid to Ruin of Chemax Church (visible in distance). An extraordinary railway through the dense forests of Northern Yucatan.



RUINS OF CHITZEN ITZA.

By prearrangement, instead of flying directly to Cozumel, we headed over the northern peninsula of Yucatan to pick up a large inlet marked on the map as being about thirty miles north of a ruin known as Kantunil. Upon arriving there, however, we found no inlet as marked on the map, which considerably hampered our getting accurately located. Finally, by flying south from this point to the ruin at Coba—which, incidentally, was also inaccurately indicated—we began to get some idea of the lay of the country, and had become sufficiently orientated for our flights the following day. With this knowledge we headed for Cozumel, where we landed on the water. Fortunately, it was not necessary to remove all the artillery and cutlery again at this point, the ship remaining with its nose on the beach all night.

There is a native village on the island of Cozumel, known as San Miguel, the inhabitants of which are mostly descendants of the Mayan Indians. On the day of our arrival, they were holding some sort of native festival, and insisted that we go around to the town in a small motor-boat, a distance of about thirty miles on the open sea, to a dance there that evening. Although we were not particularly keen about the trip or the dance, it seemed about the only prospect of finding a place to sleep, so we headed for the open sea in a very small motor-boat. The "voyage" seemed interminable. The water was very rough, the night was pitch black, and our escort had the temerity to tell us that the water was all full of rocks. Aside from these little annoyances and the discomfort of being drenched to the skin, we had a more or less enjoyable time. We managed to get dried out when we reached the village (which, incidentally, does not appear to have had the benefit of civic promotion campaigns), and attended the dance in the evening. Later we were ushered to beds in one of the native huts on the island. The beds were quite comfortable; the only interrupting element to sound sleep was a scorpion, which kept crawling around

under Mr. Alden Mason's bed and in the morning finally decided to get into the bed. Fortunately, Alden was able to catch up with it before it did any damage.

As we prepared to take leave the next morning, the General in charge of the village insisted on kissing us all before we left. This procedure seemed a little out of the ordinary, but, not wishing to seem ungrateful for the hospitality of the night, we acquiesced. After which we proceeded once more on our thirty-mile journey on the open sea, including another unscheduled shower bath, arriving back at the plane delightfully wet, and all ready for the morning's work.

Leaving Cozumel on the morning of December 4, we flew southward down the east coast of Yucatan to a large inlet about fifty miles to the south. Most of this flying was done at quite a low altitude, in order that we might inspect the temples along the seafront. After reaching the inlet, we flew inland over the jungle, and then north to the lakes at Coba. We discovered that these lakes had been incorrectly indicated on the map by a distance of approximately fifteen miles. We endeavoured to ascertain their exact location geographically by flying compass courses from Coba and finding exactly at what point we struck the island of Cozumel. We would then fly to the southern point of Cozumel, follow a compass course to Coba, and finally from that point fly back to the northern point of Cozumel. Ultimately we had five compass bearings, and we were able accurately to fix the exact longitude and latitude of the village. We also discovered that there are five lakes there instead of two as originally charted.

After this first day of flying, we decided that the only way to pick out new pyramids was to fly very low over the tree-tops, clearing them by about ten feet; the temples would then stand up in clear silhouette. Inasmuch as this was rather a dangerous undertaking, we concluded that it would be best, rather than fly consistently



Beautiful Lake Petah, Chiapas, Mexico, the beauty of which can only be appreciated from the air, since it lies hidden deep in the almost impenetrable forest lands.

Backed by hundreds of miles of almost impenetrable virgin forest, the Ruins of Tulum are clearly visible in the open space facing the sea on the East Coast of Yucatan.



low, to fly alternately high and then low. Thus, during the short period when we were down, we would all take a quick look around, and, if no ruins were seen, go up again. If a pyramid did show up on the horizon, we would change our compass course, make a note of our shift in course and fly low until we reached the new temple, when we would make a note of its location.

On the afternoon of December 4, we flew cross-country from Cozumel to Merida, via Coba, locating and taking photographs of the old Mayan Causeways, 1,500 years old, which lead west from the lakes at Coba. These causeways we photographed for the first time. This was possible only by virtue of the fact that we flew over them late in the day, when the shadow caused by the raised roadways was thrown to one side by the setting sun. On this flight we located several new temples, and ultimately landed at Merida, in Yucatan, in the south-east part of Mexico.

Upon our arrival at Merida, the Mexican authorities promptly confiscated all the cameras, despite the fact that we had permission to photograph. We had visions of continuing the remainder of the trip without any photographic record of new temples discovered. However, the next morning they had relented, and returned all our equipment to us.

In order accurately to check our compass bearings at all times, we found it necessary, before making a flight, to lay out what we believed would be the course we would fly, and then, when flying, make notations of the compass bearings, allowing for deviation and variations. Quite frequently, however, while flying low, we would locate a new temple and fly to it, necessitating an unscheduled change in course. In order to overcome the difficulty

thus incurred, we would, before taking off, synchronise all our watches and all write in notebooks. Then, whenever a course was changed in flight, we were always notified of a new course, and all of us entered our observations in the different books. In this way, at the end of the day, we could all get together and from our notations plot our course on the map, and then, in turn, plot all our observations on the map. In this way we could locate topographical features and Mayan ruins very accurately.

We hopped off again on the morning of December 5, covering much more territory than we anticipated. Flying over Uxmal, Kabah, we headed for a lake in the centre of Yucatan, immediately north of the ruin of Elemax. Much to our surprise, however, after we had flown on the correct compass course for half an hour more than was supposedly necessary, no lake turned up underneath; it had completely vanished from the face of the earth. The next landmark we saw was Lake Bacalar, which is on the east coast of Yucatan. As soon as we sighted this body of water, we swung about and headed for the Isle of Carmen, our next stop. By careful calibration of our distance and compass bearings, we estimated that we could reach Carmen safely on the remaining petrol in our tanks. But, when about three-quarters of the way to Carmen, we encountered a strong head wind, which made us wonder whether we should be forced to land in the lagoon without reaching our destination. However, we did reach there safely just at sundown, making a smooth landing on the airport maintained at that point by the Mexican Aviation Company.

(To be concluded next week.)



Usumacinta River—at Yaxchilan.

Hinkler's "Ibis"

TO appreciate the reasons which prompted Bert Hinkler to build the little two-seater machine which he has named the "Ibis" it is necessary to go back a few years. "Bert" had made his famous flight to Australia in 15½ days in the Avro "Avian" (Cirrus), had spent some months in his native land, and had returned to England. On the flight to Australia, in which he acted as pilot, engineer, navigator and general handyman, Hinkler had found time to ponder on the way of things, and he had not found all of them good. In Australia he added more experience to his already considerable store of that commodity, and when he came back to England he was very sure of what exactly he wanted in the way of an aircraft. The machine should be comfortable both for pilot and passenger. The view from the cockpit or cabin should be good in all directions that mattered. If the machine could be made an amphibian without too great sacrifice in performance and/or useful load, so much the better. It should be as nearly immune from forced landings as it was humanly possible to make it.

Hinkler looked around the British aircraft trade and did not find a machine which exactly fulfilled his somewhat difficult requirements. He then got out the general scheme of what he thought his ideal machine should be, and he took the scheme to a few aircraft firms with the object of getting one of them to take on the building and marketing. He did not succeed. Whether the firms were too short-sighted, or whether Hinkler was too far ahead of his time, or whether merely the psychological conditions were not right, or whatever the reason may have been, he failed to get anyone to take up his ideas.

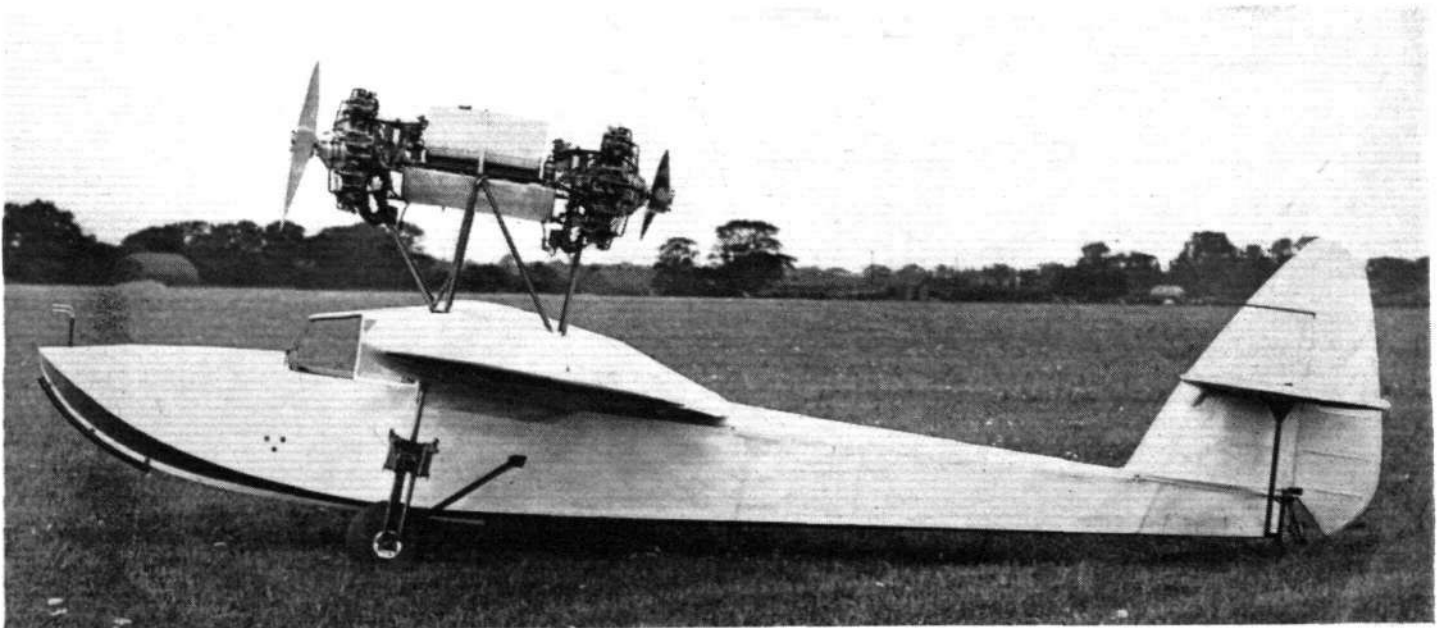
Being energetic, resourceful and well able to use his hands as well as his brains, Hinkler said in effect: "Very well; if you won't build the machine, I'll build it myself." And build it he did. Not, of course, entirely single-handed. That would have been well nigh an impossibility. Mr. R. H. Bound helped him with design

and construction, and Mr. Basil B. Henderson designed for him a wing in which the Henderson patented type of wing construction was used. But much of the actual work was Hinkler's, and practically all the original ideas were certainly his.

The "Ibis" (as Hinkler had decided to name his machine) was built under far from favourable conditions. A very small shed at Hamble was commandeered, and here some of the work was done. At his home at Shoreham Hinkler did the scheming, and, we believe, some of the smaller work, although it is not true that such items as engine cowls, etc., were formed on Mrs. Hinkler's wringer!



THE "IBIS" IN FLIGHT: That the view is good is shown by the fact that in this picture the upper half of "Bert's" head is visible. (FLIGHT Photo.)



SIDE VIEW OF THE "IBIS": The tandem arrangement of the two Salmson A.D.9 engines looks very simple but caused Hinkler a lot of thought. (FLIGHT Photo.)



THE HINKLER "IBIS": The experimental machine is not an amphibian, although the possibility of turning it into one has been taken into consideration in the design. (FLIGHT Photo.)

But, in all seriousness, the "Ibis" took shape in spite of great difficulties. As Hinkler himself says, when some small point cropped up, such as the machining of a fitting, he had to suffer long delays while the job could be done by someone or other. In an aircraft works it would have been a trivial thing, and done by the shops in half an hour. Under the conditions in which the "Ibis" was being built it most likely meant many days' delay. However, the work progressed, even if but slowly, and the machine was finished and flown.

The "Ibis" is, as the photographs will show, a cantilever monoplane, with a boat-like fuselage and the two Salmson A.D.9 engines mounted in tandem above the wing. Nowadays the arrangement is apt to pass almost unnoticed, but when Hinkler first conceived the idea there were few machines with their power plants so arranged. Hinkler decided on two engines because he wanted to be entirely free from any fear of a sudden forced landing. In Australia, for which country he mainly designed, there are many large areas where forced landings would be at the very least highly inconvenient and probably serious, but it also has an enormous coast line with many bays, and a number of rivers navigable to marine aircraft, so that the ideal of an amphibian flying boat was at the back of Hinkler's mind all the time. With two engines rendering the likelihood of sudden forced landings very remote, and with a retractable undercarriage on a flying-boat hull, he felt that there would be very few places where he could not go.

The first "Ibis" is not actually an amphibian, but the fuselage has quite obviously been designed with the amphibian in mind, and actually the structure has been so devised that it would be possible to build on to the hull a pair of steps. The undercarriage is not at present retractable, but could quite easily be made so.

The fuselage, or hull, is of wood, as Hinkler could obviously not tackle amateur metal construction. Methods were, however, devised whereby the wood was rendered unusually resistant to water soakage, and the shape of

the hull is such that a metal version (with steps) could be built fairly simply.

The two Salmson A.D.9 engines are mounted in tandem above the wing, and Hinkler managed to scheme out a very simple engine mounting. Once he got to the flying stage he made many experiments with the object of discovering the best arrangement for keeping the rear engine cool. He had, we believe, no really serious trouble with overheating of the engines, but he wanted to be sure, and he wanted to get the cooling for the smallest possible price in drag. Propellers are apt to be expensive items, and we believe we are correct in saying that Hinkler never had a pair of matched propellers. That is to say, his propellers were alike, and not of different pitch, as they would have been had he been able to afford experiments to find the best combination of pitch and diameter for each propeller.

In spite of all these difficulties, Hinkler really managed to do a great deal, and the "Ibis" flies very well. One of the things Hinkler had set himself to do was to provide a good view. The relative position of engines and pilot has been so chosen that the view is quite remarkably good. The little cabin has accommodation for pilot and passenger seated side by side, and both can look over the nose of the hull at a very good angle, as is shown in one of our photographs. The proximity of the front propeller to the windscreen can be criticised, especially in connection with an idling engine when the machine is about to take off, or just after a landing, and if the machine were used as a flying boat, this arrangement might interfere a little with the freedom of the crew to pick up a buoy unassisted.

The "Ibis" has not, we believe, "been through Martlesham," and so no official performance figures are available. The machine appears, however, to have quite a good turn of speed, and its manoeuvrability is obviously good. It is very much to be hoped that Hinkler will find ways and means to develop the type for general production. The layout is not ideal, perhaps, but it has in it the makings of a very useful type.

German Pioneer 60

On January 4, Dr. Ing. Edmund Rumpler celebrates his 60th birthday, and the occasion will be taken by many societies and individuals to express their appreciation of his work. Edmund Rumpler was born on January 4, 1872, in Vienna. After finishing his studies in Vienna, he spent several years with various automobile firms, and after a while he became technical director and chief engineer of the Adler Works in Frankfurt-am-Main. While with this firm Rumpler produced the first German motor-car engine to have all its valves arranged on one side and operated from a single camshaft. It was in 1908 that Rumpler began to make aeroplanes, and in 1910 he produced the Rumpler Taube monoplane, a type which became very popular. At the Berlin aero show in April, 1912, Rumpler exhibited a limousine Taube, which was certainly one of the first cabin machines to be produced. (The Avro firm produced in the same year a monoplane and a biplane machine for the Military Trials on Salisbury Plain.) About the same time Rumpler produced the first

German 8-cylinder vee-type aero engine. During the war Rumpler designed and built a number of prototypes, and he was one of the few German constructors who never at any time during the war was told to build aircraft of other firms' design. In the automobile world Rumpler gained fame by introducing the streamline car in 1919. Since the war he has been engaged on the design of a giant ocean-going flying boat (see FLIGHT, December 26, 1930), and all will join FLIGHT in expressing the hope that Dr. Rumpler may live to see his ambition achieved.

A Port of Call in the West

It may be well to call the attention of those pilots who have to make journeys down to the West Country to the fact that full refuelling facilities have been installed by the Westland Aircraft Co. at their aerodrome at Yeovil. Yeovil has often been called the "Gateway to the West," and in point of fact this name is well merited, for it is most conveniently situated for pilots, no matter what part of the West Country they are visiting.

THE ROYAL AERO CLUB OF THE UNITED KINGDOM

OFFICIAL NOTICES TO MEMBERS

REPORT of Meeting of the Committee of the Royal Aero Club held at 119, Piccadilly, London, W.1, on Wednesday, December 16, 1931, at 5 p.m.

Present :—Lt. Col. M. O'Gorman, C.B., in the Chair ; Com. James Bird, O.B.E., Lt. Col. M. O. Darby, O.B.E., W. Lindsay Everard, M.P., Maj. A. Goodfellow, Capt. A. G. Lamplugh, J. Lord, Col. F. Lindsay Lloyd, C.M.G., C.B.E., Lt. Col. J. T. C. Moore-Brabazon, M.C., M.P., Maj. H. A. Petre, D.S.O., M.C., F. Handley Page, C.B.E., Capt. C. B. Wilson, M.C. In attendance, H. E. Perrin, Secretary ; B. Stevenson, House Secretary.

New Members.—The following New Members were elected :—

George Armitstead Allan, Rolf Anderson, George Norman Beckmann, Francis Delaforce Bradbrooke, Harry Edgar Broadsmith, Allen George Clark, Christopher Clarkson, John Rhodes Cobb, John James Curnow, Roderick Peter George Denman, Claud William Dennis, William Charles Devereux, Flt. Lt. Ralph Horatio Woolnough Empson, Dr. Arthur Harloe Wynne Fleming, Robert Fretz, Percy Wilson Howard, Walter Ashby Howkins, Noel Martin, Guy Robson, Lord Herbert Scott, C.M.G., D.S.O., Richard Wilcock Sellers, Capt. Duncan Sinclair, Robert Hicks Walmsley, Garthowen Williams.

Aviators' Certificates.—The following Aviators' Certificates were granted :—

10214	Arthur R. Cox ..	Norfolk and Norwich Ae. C.
10215	Thelbert St. J. Foster ..	Northern Air Lines
10216	John Marshall ..	Hanworth C. (N.F.S.).
10217	Edward M. K. Mead ..	Do. do.
10218	Alfred M. Palmer ..	Do. do.
10219	Anne Horrocks ..	Lancashire Ae. C.
10220	William L. F. H. A'Court	Brooklands Fl. School.
10221	Ronald E. G. M. Clarke	Do. do.
10222	Kenneth G. Russell ..	Yorkshire Ae. C.
10223	Betty Crisp ..	Bristol and Wessex Ae. C.
10224	Charles D. Todd ..	Brooklands Fl. School.
10225	George U. Yule ..	Marshalls Fl. School.
10226	Henry J. Haynes ..	Cinque Ports Fl. C.
10227	Charles A. Spinks ..	Herts and Essex Ae. C.
10228	Edward C. Dalton ..	Eastern Counties Ae. C.
10229	Richard C. Williams ..	London Ae. C.
10230	Jack Weller ..	West Kent Fl. School.
10231	Kersty C. Nelson ..	Hanworth C. (N.F.S.).
10232	Eldon Moore ..	Brooklands Fl. School.
10233	Hugh E. S. Pritchett ..	Eastern Counties Fl. C.
10234	Cyril C. Bemrose ..	Blackpool and Fylde Ae. C.
10235	Sylvie S. Warliker ..	British Air Transport Ltd.
10236	Vinko de K. Kovic ..	Do. do.
10237	Leonard T. Keens ..	R.A.E. Ae. C.
10238	Thomas G. Thomlinson ..	Eastern Counties Ae. C.
10239	Denis P. N. Aranha ..	Northern Air Lines.
10240	Douglas Whittaker ..	Eastern Counties Ae. C.
10241	John H. Hancock ..	Hanworth C. (N.F.S.).
10242	Lishue Chen ..	Do. do.
10243	Johannes H. Loots ..	Marshalls Fl. School.
10244	John A. Johnson ..	Blackpool and Fylde Ae. C.
10245	Stanley J. M. Newman	Eastern Counties Ae. C.
10246	Robert O. Symon ..	Reading Ae. C.
10247	Bernard J. Piper ..	Brooklands Fl. School.
10248	Abdul H. A. Ibrahim ..	Reading Ae. C.
10249	Walter L. James ..	Do.
10250	Timothy R. Blake ..	Eastern Counties Fl. C.
10251	Stephen J. Palmer ..	Bristol and Wessex Ae. C.
10252	Theodore S. Sprigg ..	Brooklands Fl. School.
10253	Phyllis M. N. Stanning	London Ae. C.
10254	Patrick G. James ..	Reading Ae. C.
10255	Janet Oldacres ..	Brooklands Fl. School.
10256	John Parker ..	Midland Ae. C.
10257	John W. R. M. Salusbury-Trelawny	Cinque Ports Fl. C.
10258	Erik B. Whishaw ..	British Air Transport.
10259	Thomas W. G. Eady ..	—
10260	Albert L. White ..	Rollason Aviation Co.
10261	Leslie G. Sparrow ..	Cinque Ports Fl. C.

10262	S. Hope-Chapman ..	Rollason Aviation Co.
10263	Francis Worthington ..	—
10264	Francis Wallis ..	Hampshire Ae. C.
10265	George H. West ..	Yorkshire Ae. C.
10266	Percy Broome ..	Lancashire Ae. C.
10267	Richard H. N. Graham	Phillips and Powis Fl. School.
10268	David J. A. Jones ..	Eastern Counties Ae. C.
10269	Danzil G. Fortescue ..	Airwork Fl. School.
10270	Wesley A. Rowell ..	Phillips and Powis Fl. School.
10271	The Hon. G. G. Tomlin	Herts and Essex Ae. C.
10272	John B. Storey ..	Lancashire Ae. C.

Gliding Certificates.—The following Gliding Certificates were granted :—

A. 222	George S. Suggett ..	North Kent Gl. C. ..	1.11.31
223	Leslie O. Kekwick ..	Do. do. ..	Do.
224	Harold W. W. Jiggins	Do. do. ..	Do.
225	Geoffrey Howard ..	Do. do. ..	Do.
226	John O. H. Turner	Do. do. ..	Do.
227	Norman Cave ..	S. Counties Soaring C.	27.9.31
228	Alan R. Jameson ..	Do. do. ..	18.10.31
229	Seymour Whidborne	London Gl. C. ..	22.8.31
230	Robert J. Wynne ..	Southdown Skysailing C.	1.19.31
231	Walter N. Hewson	Imperial College C.	9.9.31
232	Byron Winder ..	Furness Gl. C. ..	1.11.31
233	Albert Whitehead ..	Preston and Dist. Gl. C.	15.11.31
234	Fl. Lt. C. P. O. Bartlett	Isle of Thanet C. ..	20.9.31
235	Robert L. Yates ..	Portsmouth and Southsea	1.11.31
236	Richard G. Proctor	Accrington and Dist.	22.11.31
237	Edward L. Ashworth	Do. ..	Do.
238	James E. Pollard ..	Do. ..	Do.
239	Robert J. Parsons ..	Worthing and Dist. Gl. C.	1.11.31
240	Norman T. White-man	Do. do. ..	31.10.31
241	Louis A. Desoutter ..	London Gl. C. ..	9.8.31
242	Henry A. W. Stormont	Worthing and Dist. Gl. C.	6.12.31
243	Oswald G. Hughes ..	Accrington and Dist. Gl. C.	Do.
244	Walter J. Cowell ..	Do. do. ..	Do.
B. 227	Norman Cave ..	S. Counties Soaring C.	25.10.31
229	Seymour Whidborne	London Gl. C. ..	27.9.31
147	John B. E. Keeble	Imperial College Gl. C.	19.9.31
171	Aian W. Graham ..	Preston and Dist. Gl. C.	29.11.31
C. 83	Ebenezer K. Robins	S. Counties Soaring C.	25.10.31
89	Alan K. Bindloss ..	Do. Do. ..	Do.
227	Norman Cave ..	Do. do. ..	Do.

Finance Committee.—Mr. F. Handley Page, Chairman of the Finance Committee, submitted a general report on the finances of the Club.

King's Cup Air Race, 1932.—The recommendations of the Racing Committee, regarding the regulations for the King's Cup Air Race, 1932, were considered and unanimously approved for submission to His Majesty The King.

Royal Aero Club Gold Medal.—The award of the Gold Medal to Sqd. Ldr. H. J. L. Hinkler, A.F.C., in recognition of his flight from New York to London, via the West Indies, South America and West Africa, announced at the Schneider Banquet, was unanimously confirmed.

F.A.I. Paris Conference.—Lt. Col. M. O'Gorman and Maj. C. J. W. Darwin were appointed delegates to represent the Club at the Conference of the F.A.I. to be held in Paris on January 15, 1932.

Portrait of the late Sir Sefton Brancker.—The Committee unanimously selected Capt. E. Newling to paint the portrait of the late Sir Sefton Brancker, which is to be hung in the Club.

Offices: THE ROYAL AERO CLUB,
119, PICCADILLY, LONDON, W.1.
H. E. PERRIN, Secretary.

Private Flying & Gliding



IRELAND'S FIRST WOMAN PILOT: Miss Shamrock Trench, who obtained her "A" licence at the Irish Aero Club on the Club's "Moth" at Baldonnel Aerodrome.

PROGRESS IN IRELAND.—Considerable progress in private flying has been made in the Irish Free State during the past year, and a number of "A" licences have been issued to members of the Irish Aero Club. An event in the history of the Club was the obtaining of a "ticket" by Miss Shamrock Trench, who is the first home-trained woman pilot; she is now preparing to take a course for her "B" licence. There is still some difficulty for "B" licence candidates, as the night equipment has not yet been installed at Baldonnel aerodrome. Obstruction lights have been fixed on the hangars, but the floodlight has not arrived. As soon as this is completed, one member of the Club, Mr. A. C. Woods, and a pupil of Iona National Airways, Mr. St. John Kearney, are expected to carry out their night-flying tests. The present strength of the Aero Club is about 130 members, about 50 being pilot members. During the season the two instructors, Mr. W. R. Elliott and Mr. C. F. French, have put in a considerable amount of work on tuition and joy-riding in the country; the latter has been very successful both from a financial and propaganda standpoint.

THE BRISTOL AND WESSEX AEROPLANE CLUB DANCE.—Bristol lived up to its reputation for good hospitality and bad weather again on Thursday, December 17, when the Bristol and Wessex Aeroplane Club held its first dance of the season at the Grand Spa Hotel, Clifton.

Although the attendance at these dances usually approaches the 300 mark, this time it fell to about 180, which was probably partially accounted for by a very heavy fog which covered this part of the country after nightfall, and prevented many people coming in from outlying parts.

The dance itself was a most delightful affair, being more or less in the nature of a family party, as everyone seemed to know everyone else, and all went merry until 2 a.m., when the assembled company, tired but happy, was reluctantly packed off homewards in the freezing night air by Capt. "Gerry" Winters, who so successfully organised the whole show.

HANWORTH CLUB.—The Committee propose to give a Children's Party at the Club on Wednesday, January 6, 1932, at 4 p.m. Admission will be by ticket only (3s. 6d. for each child, adults 1s. 6d.).

Members wishing to bring children to the party are requested to communicate immediately with the Hon. Secretary of the Club Committee, giving the full names and approximate ages of the children they propose to bring, and, if possible, the number of adults accompanying them. On receipt of this information invitations will be issued to the children through the members concerned; these invitations can only be sent if the above particulars are forthcoming. Joy riding for children from 2 p.m.

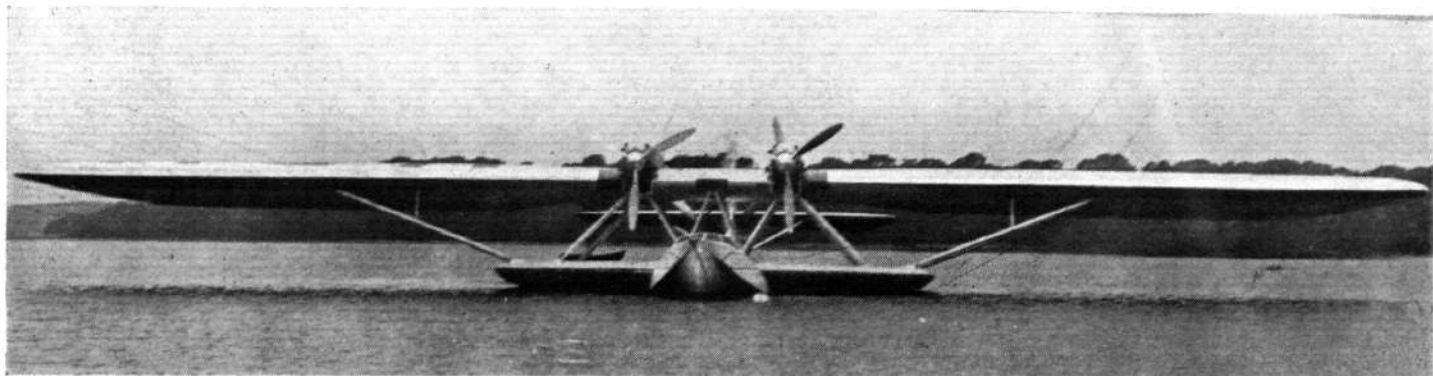
CINQUE PORTS FLYING CLUB.—It is reported that at a meeting held last month the directors of the Cinque Ports Flying Club decided to wind up voluntarily and sell the whole of the assets to Brooklands Aviation, Ltd., for £914. The Chairman, Mr. A. Dallas Brett, stated it was the only alternative to the closing down of the club altogether. Most of the shareholders had £1 shares and they would receive at least 19s. in the £ if not paid in full.

CODY'S GLIDER.—A correspondent—an ex-member of the Royal Engineers—who assisted the late S. F. Cody with his glider at Aldershot, is anxious to get into touch with other ex-members of the R.E. who did likewise. He is anxious to form a model aircraft club in memory of S. F. Cody, and would therefore like to hear from any of those who assisted that pioneer, and from anyone interested in the scheme. We will be pleased to forward letters concerning this from readers to our correspondent.



GLIDING COUNTRY: (Left to right), Mrs. Addyman and "the boys," N. Pickles, L. Brook, E. W. Addyman. From this slope flights of over a mile have been made in the "Dickson" glider built by the Aircraft Club of Harrogate.

Air Transport



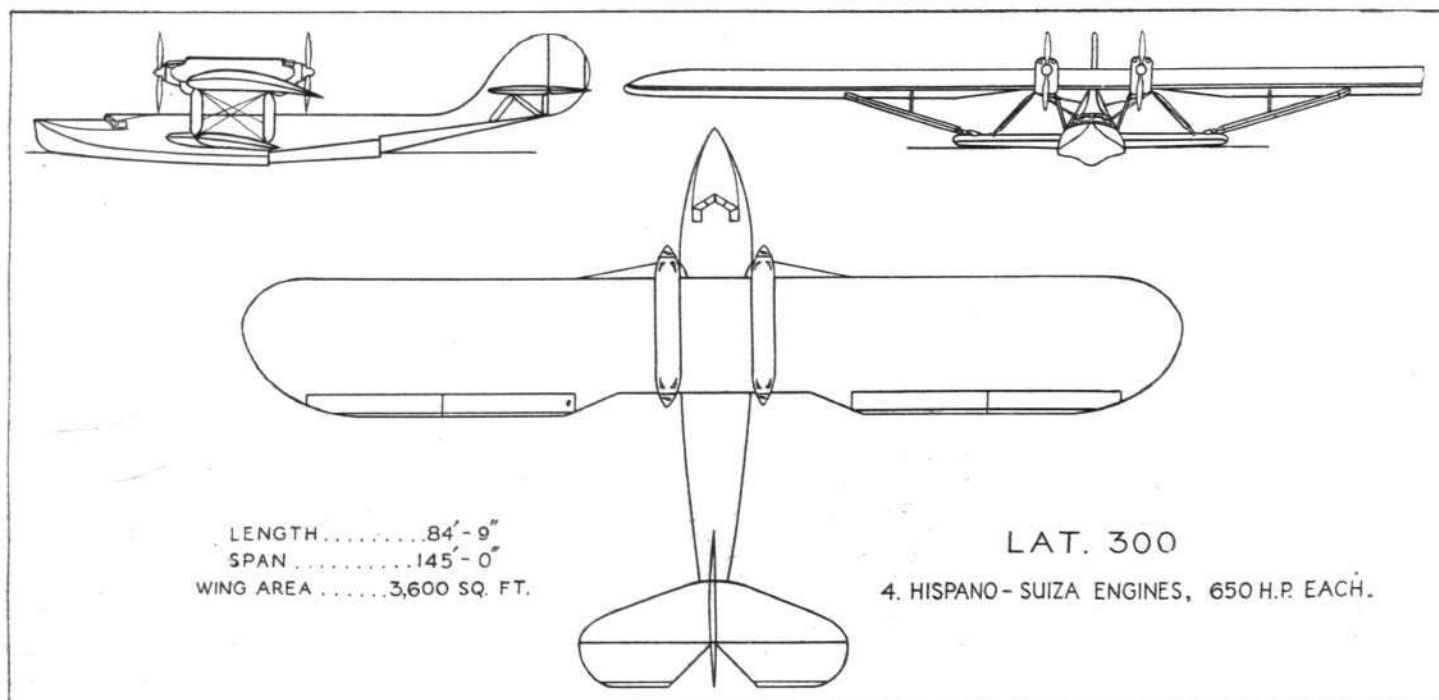
The Latécoère Lat. 300

France is pursuing a vigorous policy of flying boat development. Recently we announced that Bleriot is building a 20-ton flying boat, and below we give particulars of a new Latécoère of approximately the same weight which has already made its first test flights. The machine is intended, if it comes up to expectations, for the South Atlantic mail service. [Since this article was written and set in type we have had news that Lat. 300 was sunk during a test flight. Details are not at present available.—Ed.]

GREAT BRITAIN has, for a number of years, held a leading position in the production of seaworthy all-metal flying boats. That this position would not remain unchallenged for long was a foregone conclusion, and among the nations which are striving seriously to catch up with us is certainly France. For many years the French policy was to design marine aircraft intended to operate from fairly sheltered waters, and the types produced under that policy could not, indeed were not, intended to compete with British flying boats for seaworthiness. Lately, however, there appears to have been a decided change in policy where French marine aircraft is concerned, and an endeavour is now being made to meet the new conditions. It may, perhaps, be recollected that some time ago France bought from Short Brothers a "Calcutta" flying boat fitted with Gnome-Rhone "Jupiter" engines. That the purchase was made in order to provide data and information for French flying-boat designers was fairly obvious, and was actually sound

common sense from the French point of view. The firms on the other side of the Channel have now had time to get going, and as the French Government has now given them the opportunity for which they had been waiting, progress may be expected to be rapid.

The Latécoère type 300 described below is quite obviously not in any sense a copy of the Short "Calcutta," and whatever influence the British machine may have had on design, it is not visible in such external views as have been published. If it is a question of "copying," as in fact it scarcely seems to be, there is more similarity between the Lat. 300 and the Dornier machines, in that there is a flying-boat hull surmounted by a monoplane wing on which the engines are carried, while lateral stability is obtained by short wing stumps springing from the sides of the hull. This general type of layout has been used by the Latécoère firm for many years, and the present machine is, in fact, a development of an earlier type, the 380, but fitted with four instead of two engines.





When we state that the type 300 is being followed by a still larger machine of 4,000 H.P., it will be realised that this famous Toulouse firm is very much in earnest about developing the transatlantic type of flying boat.

For the data, etc., of the Lat. 300 which follow we are indebted to our excellent French contemporary *Les Ailes*, whose Editor-in-Chief, M. Georges Houard, is one of the best friends British aviation has in France, his comments being always scrupulously fair and just, while his willingness to give any British aircraft or flight of merit prominence in his paper is well known and in considerable contrast with certain French aviation journals.

The Latécoère type 300 is of all-metal construction, the material used being mostly aluminium alloy, although steel fittings are used here and there. The main monoplane wing has two duralumin spars, duralumin ribs, and fabric covering. The lower wing stumps, whose span is 13½ metres (44 ft. 3 in.), are planked with light metal. The ailerons are balanced by narrow-chord auxiliary surfaces hinged to the aileron trailing edges and moving in the opposite direction to the ailerons. A similar type of balance is used for the elevators and rudder.

The boat hull is of all-metal construction, but details are not available. The shape of the hull is, it would seem, a combination of British and French practice. The two steps usually found on British flying-boat hulls are used. Hitherto French flying-boat designers have shown a marked preference for the single-step hull. The vee bottom is used, but the vee is less pronounced than in most large British flying boats. From the chines upwards the Lat. 300 hull is quite different, the bulkhead being approximately of semi-circular form. The machine is large, it is true, but the freeboard appears low in comparison with British practice. Put differently, the ratio of height to beam seems much lower than in British boats. At the stern the hull is raised considerably, and ultimately forms the fixed fin to which the rudder is hinged.

The wing stumps are of biconvex section, and are used, in addition to their function as lateral stabilisers when

the machine is on the water, as part of the wing bracing structure, the struts running to the engine mountings and to the outer wing pieces being anchored to the stumps. Triangulation is carried to a considerable extent, and wire bracing is entirely absent.

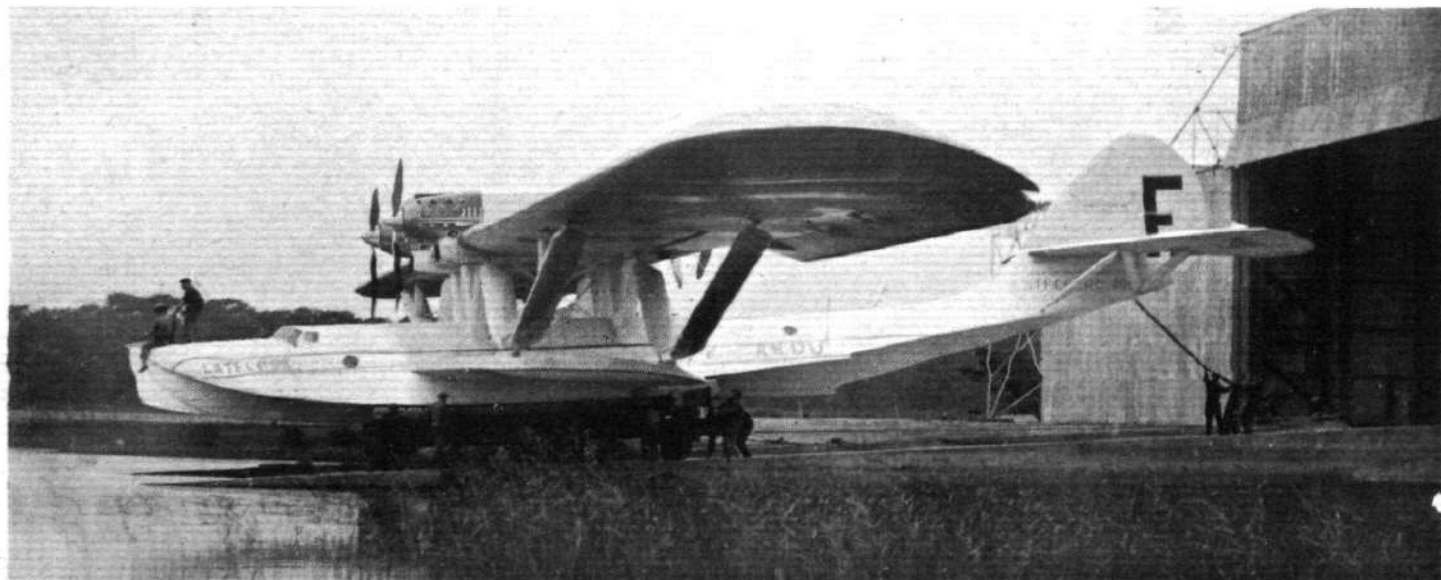
The interior of the hull is utilised largely for the accommodation of the great quantities of fuel which the machine will have to carry for a flight across the South Atlantic. In the forward part of the hull is the marine equipment, etc., and behind that is the cockpit, with two seats side by side and dual controls. Aft of that is the wireless cabin and a small resting cabin for the crew. No passenger accommodation is provided, as the machine is intended for mail carrying, the pay load for the estimated range being 500 kg. (1,100 lb.), which will not take up much space.

The four Hispano-Suiza engines, type 12 Nbr., of 650 h.p. each, are mounted on top of the wing, in very elongated nacelles, two engines being tractors and two pushers, so that a considerable separation in a fore and aft direction was necessary in order to get the airscrews clear of leading and trailing edges of the wing. Fuel supply must of necessity be by pump, and A.M. pumps are used. In addition there is a hand pump for use in emergency, although one does not envy the member of the crew who has to supply fuel to some 2,500 h.p. Engine starting is by an auxiliary engine installed in the crew's quarters.

It is intended that the machine shall normally carry a crew of four: first pilot, second pilot, wireless operator, and engineer. It is calculated that with 10,970 kg. of fuel the machine will have a range of 3,250 km. against a constant headwind of 30 m.p.h.

The main data of the Latécoère 300 are as follow:—Length overall, 25.83 m. (84 ft. 9 in.); wing span, 44.2 m. (145 ft.); wing area (including stumps), 306 sq. m. (3,600 sq. ft.).

The tare weight is 10 613 kg. (23,350 lb.), and the maximum permissible gross weight 22 440 kg. (49,370 lb.). The load is divided as follows:—Pay load, 500 kg. (1,100



THE LATECOERE 300: The photograph at the top of the page shows the machine at moorings: Note that the pusher airscrews are three-bladed, while the tractors are two-bladed. The lower photograph, showing the launching, gives a good idea of the size of the machine.

lb.); fuel and oil, 10 970 kg. (24,150 lb.); crew and their equipment, food, etc., 357 kg. (785 lb.). It will be seen that the ratio of gross weight to tare weight is 2.11, which is an exceptionally high ratio, the machine carrying more than its own weight in load. The wing loading is, moreover, 13.7 lb./sq. ft., which cannot be regarded as unduly high for a machine of this type. To have achieved

such a ratio of gross to tare weight for so low a wing loading appears something of a feat.

Performance tests have not yet been made, but the estimated performance figures include the following:—Maximum speed at sea level, 202 km./h. (125 m.p.h.); service ceiling, 4 100 m. (13,450 ft.); range against 30 m.p.h. headwind, 3 250 km. (2,000 miles).

Mishap to Australian Air Mail

ONCE again misfortune has overtaken the Australian National Airways "Xmas Air Mail." Complete overhauls having been completed—in record time—to the Avro 10 *Southern Star* at the Hamble dépôt of A. V. Roe, Ltd., the machine, piloted by Mr. G. U. Allan, left Hamble for Croydon on December 21, the day before it was due to start on the return flight to Australia. Unfortunately, the pilot had to make a forced landing in a field at Crocken Hill, Kent, and in doing so ran into some trees, and damaged the machine—neither he nor the two passengers were injured. It has not been possible to obtain another machine, and so the return flight will have to be postponed until repairs to the *Southern Star* are effected. A. V. Roe, Ltd., state that these will be completed to enable the machine to leave Croydon on January 6.

International Congress of Transoceanic Airmen

PARTICULARS have been issued by the Royal Italian Aero Club regarding the Congress of Transoceanic Airmen

which it proposed to hold in Rome next May. The object of the Congress is not only to assemble airmen who have flown from continent to continent in heavier-than-air machines, and to listen to reports submitted by them, but also to "examine all matters and problems concerning the possibility of organising regular transoceanic air traffic." The subject matter of the Congress is divided under four heads, namely, air routes; suitable stages and landing places; meteorology; and wireless telegraphy. The reports may be drafted in one of the seven languages, which include English, recognised by the Congress, but the authors are invited to send a summary in Italian or French to the secretary by February 28. Airmen attending this Congress will be the guests of the Royal Italian Aero Club.

Cape Air Mail Arrives

THE special Imperial Airways Christmas air mail to the Cape, which left Croydon on December 9, arrived at Capetown on December 21, a day late.

Airport News

CROYDON

FOG was the order of the day the week before Christmas, and every day we were shrouded in it. The regularity of the services was therefore somewhat interfered with, although some really stout efforts were made by pilots, particularly on December 19, when several machines arrived in almost hopeless conditions, visibility being about 50 yards. The white chalk line has proved its worth to many pilots, when taking off, and services which might otherwise have been cancelled have been able to operate. This line across the aerodrome was the idea of Mr. J. Youell, a well-known pilot of Imperial Airways, and by its use a pilot can keep on a straight course, taking off in a fog, without the least danger of hitting an obstacle.

There is but very little of interest to write about this week, as the festive season has naturally seen the suspension of ordinary activities for a few days, and many of us have taken a well earned rest? I am not so sure about this latter statement, on second thoughts, many familiar faces are looking far from rested, and everyone seems to have a most amazing thirst. Such is the aftermath of Christmas.

Christmas Day at Croydon aerodrome was far from attractive, as there was nothing doing at all. The air for once was still, and no ear-splitting roars disturbed the peace of some of the sweet-tempered residents in the district, who were actually seen to smile over their Christmas dinners, but who were all the same annoyed because they could find nothing to complain about. There is no pleasing some people.

Boxing Day was like the usual Bank Holiday, plenty of sightseers, and a harvest for the joy-riding companies. Many people took trips with the idea of getting over the effects of the night before, in readiness for the night to come.

Sunday also was a profitable day, and machines were hard at it all day long.

The Continental routes were not operated for the whole three days, although Imperial Airways were scheduled to do so on Boxing Day and Sunday. They cancelled, however, as weather on the Continent was far from ideal.

On Sunday a Mr. Jeffreys, an Australian, left here on a Desoutter, and is flying home in stages to his native land. As far as I can gather there is no intention of breaking or trying to break any records, but simply a means of getting home.

Imperial Airways have bought a Desoutter to replace the old DH50, for special charter work. This Desoutter is the machine which has up until this transfer belonged to the British Red Cross Society, and could often be seen about the country.

The National Aircraft Factory since it has been sold is rapidly taking on an air of respectability. All the wild undergrowth has been removed, gardens straightened out, roads swept, and a general clean and paint up made. It should now attract the eye of many business firms requiring premises. An estate office has been opened on the estate, where prospective tenants can make the fullest inquiries.

The traffic figures for the week were:—Passengers, 510; freight, 41 tons.

P. B.

HESTON AIR PARK

THE authorities at Heston have taken full advantage of the slackness of the Christmas week to have a good drive and finish off, or at least get well advanced with the reconstruction work which has up to date been in progress. These alterations will undoubtedly make Heston the most attractive airport in England, and we hope that the coming year will see a continuance of their prosperity. An interesting visitor which arrived on Christmas Eve was a large twin engined Sikorsky amphibian (2 Pratt and

Whitney "Hornets"). This aircraft, which is a luxurious air yacht seating six persons as well as the pilot, is the property of Miss Durant, who is on her way to Africa via the Riviera. Her pilot, La Jotte, will be remembered at Heston, as earlier in the year he brought over a Lockheed Vega for the same owner. Such an amphibian as this is an ideal craft for making extended tours of the world. Sleeping accommodation can even be provided, if desired, by lowering the seats to form bunks. They arrived at Le Bourget on December 28.

Correspondence

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HIGH-SPEED LONG-DISTANCE FLYING

[2784] I read with interest the advertisement in your paper of a non-stop record flight, Cranwell to Cairo, a distance of approximately 2,600 miles, in 31½ hr. I cannot help thinking that Great Britain, while far exceeding all other countries in high speed over short distances, seems to lag far behind in accomplishing flights over long distances.

In America the distance of 2,500 miles is flown daily on a passenger schedule between the East and West coasts in 31½ hr., east to west, and 28 hr. west to east, and 3 hr. 15 min. is spent on the ground.

It is interesting to compare some of the high-speed long-distance flights accomplished in America recently with corresponding mileage on the map of Europe:—

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New York-Havana, 1,403 miles	One	7.05	London-Odessa.
Jacksonville-Los Angeles			
Los Angeles-Jacksonville, Florida, 4,130 miles	One	31.58	London-Karachi.

The last flight may be compared with the non-stop flight of the Fairey monoplane Cranwell-Karachi in 50½ hr.

All the recent high-speed long-distance flights tend to prove that the quickest way to cover 2,500 miles is by landing every 600 to 700 miles for a quick refuel.

In a 500-mile race at Brooklands one could scarcely expect a Baby Austin to compete on level terms with a big-six Bentley. Therefore, how can Great Britain hold her own in the world's long-distance speed records when she does not use or develop the correct type of aeroplane to accomplish high speed over long distance.

Between Karachi and London there is an airway of approximately 4,250 miles with landing grounds and aerodromes at least every 500 to 700 miles. It is incredible to me that no British aeroplane has been produced with a cruising speed of 145 m.p.h., range of 700 to 800 miles, to demonstrate the transportation of a payload of mails 600 to 800 pounds from Karachi to London in 32½ hr., landing seven times for refuelling. A flight of this nature would be well within the performance of the latest type of Lockheed.

As a demonstration of high speed over long distance, a Travel Air Mystery Ship, as flown in Europe by Capt. Hawks, would stand a good chance of making Karachi to London in 25 hr.

I would venture to suggest that Great Britain could produce a high-speed demonstrator to make the flight in 21 hr.

New York City,
December 7.

S. T. B. CRIPPS.

[Our correspondent seems to have overlooked the fact that the Fairey Long-distance Monoplane (Napier engine) was designed for a purpose totally different from that of machines built to carry mails or passengers quickly over long distances, i.e., for the purpose of attacking the world's long-distance non-stop record without refuelling. For that particular purpose, we venture to think, America has nothing capable of beating the Fairey. The flight from Cranwell to Egypt was merely a test flight made to find out under actual working conditions whether any small undiscovered "snags" were present in the machine, engine, equipment or installation. No one would deny that a totally different type of machine could be built to make much better time over the various distances by flying shorter stages and refuelling several times on the way. This is not, of course, the purpose of the particular machine in question. Were the incentive present we do not doubt that British aircraft firms could produce machines to equal, or possibly even excel, the times and distances quoted by Mr. Cripps.—EDITOR.]

"FLY BRITISH" IN NEW ZEALAND

[2785] Considerable criticism has been levelled at the Wellington Aero Club in their decision to purchase an American plane for passenger carrying. The explanation of the club secretary is rather unconvincing, i.e., that "a suitable British machine was not available." I understand the requirements were for a four-passenger biplane (cabin) with a high rate of climb, able to take off and land in a small aerodrome surrounded by obstacles on three sides. I have heard experienced pilots describe the Wellington aerodrome as being the world's worst, as far as taking off and landing are concerned. Now, Sir, the "Buy British" is at fever heat in N.Z. at present, and I consider it my duty, as one who is very proud of the British aircraft industry's achievements, and concerned for its future career, to bring before those responsible, their inability to meet this demand. As yet there is no American aircraft registered in the 80 to 90 at present in N.Z., thus the storm of protest as per enclosed Press cuttings. The British car manufacturers have sent representatives to N.Z. to study local requirements, and are beginning to reap the reward for their initiative. I respectfully suggest the aircraft constructors do likewise, as the market is theirs for the asking. American manufacturers are striving hard to get an opening here, but in the past have been unsuccessful. My name must remain anonymous, but you are at liberty to supply same to any English aircraft constructor requiring further information.

"PROGRESS."

Dearman, New Zealand,
November 6, 1931.

THE AIR SCOUTS ASSOCIATION

[2786] Some time ago you were good enough to publish my letters regarding the above movement, for which I thank you, and I would be grateful if you could see your way clear to publish the following.

Since the above movement first became a reality, over six months ago, it has been well advertised in practically every part of the country, and by letters received, it is going to fill a gap in aviation which has been long overdue; whereas the majority of average youths could not even contemplate taking to the air, owing to the necessary expense, but by joining the Air Scouts this is made possible.

We are in a position to say that there are in every town numerous youths only waiting for the chance to enter this movement, but we are unable to satisfy their wants owing to lack of financial support; surely it must be realised that this movement is a step forward in the right direction and worthy of assistance. I would say that we are, however, looking forward to a more prosperous year, as, with Col. The Master of Sempill as a patron, and help from the Air League of the British Empire, and the willingness of Mr. Gordon England, Chairman of the British Gliding Association, to assist us, it looks very promising.

The object of this Association is to help the youths of this country to take an active part in aviation; by joining the Air Scouts they will be given training on all things dealing with aviation, be taught gliding and later flying; all instruction and squadron commanders will give their services free. Age for joining is 14, and the subscriptions are 2s. 6d. entrance fee, this to cover cost of badge, and 3d. per week for those under 21 and 6d. per week for those over 21.

I would like to point out that we would welcome the assistance of anyone wishing to form and run an Air Scout Squadron, having the necessary qualifications or financial aid.

Those wishing to assist us should communicate with W. Davison, 31, Cheviot Crescent, Billingham on Tees, Co. Durham.

W. DAVISON,
Chairman.

December 27, 1931.

THE JUNIOR AERO CLUB DINES "BERT"

BERT HINKLER, like all people who perform outstanding feats in the aviation world, has had to pay for his greatness by a surfeit of dinners in his honour. During the past two or three weeks he has been dined and wined by nearly every aeronautical body of any standing, as well as by many civic authorities. The latest to pay tribute to his greatness is the Junior Aero Club, and this was staged in a vociferous and no uncertain manner, in the Club premises, Ham Yard, Great Windmill Street, London, on December 22.

Sir Arthur Whitten Brown was in the chair, and in proposing the health of "Bert," he read a letter from Col. the Master of Sempill, who regretted his inability, owing to a previous engagement, to be present to preside. Then, in a short but extraordinarily sincere and appropriate speech as from one pilot to another, Sir Arthur asked the assembly to drink the health of their guest.

Whatever reception Bert has had at other gatherings, this one certainly moved him very much more, and it was some considerable time until the spontaneous and unusual show of appreciation could be quelled. This was only done by the toast master, Mr. G. P. Olley, asking for the health of Mrs. "Bert" to be drunk. Again the cheers broke out, and once more it was a long time before Bert Hinkler was allowed to reply; when he did, he said that the difficulty of facing such an overwhelming reception would, he hoped, be realised, and he trusted that any lack of words of his with which to express his appreciation would be overlooked. He said that all this came about by his just going out on a little tour to see the world and because he kept the nose of the machine straight, he arrived back in England again. At times, he said, it was very lonely; in fact, over the water when the evening approached it was certainly his idea of "hell." Later, however, he said, he grew more cheerful, and the wonderful weather effects made everything ex-

tremely pleasant; so much so that he felt it must be like heaven—that is, if the ladies would allow that there could be heaven without their being present. Such a reception, he said, repaid any effort he had made by his flight, which, after all, was only done to demonstrate the super-excellence of British aircraft and engines to the world. He deprecated his own personal part of the flight, for he said many pilots, by real slogging hard work on air lines, were daily doing far more than he had done, as his trip was largely in the nature of a joy ride.

When called upon to say a few words, Mrs. Hinkler said that it was the most thrilling party of her life, and she asked the Junior Aero Club to accept her very grateful thanks for the evening.

Mr. Eric Teesdale, the presiding genius and secretary of the club, said that it was always his pleasure on such an occasion to propose the health of the chairman, but, he said, it was their invariable custom that the speeches should be short though potent, for they always came from men who did things and who did not talk. He noted with satisfaction that as usual they had been able to secure the presence of many important pilots, and one and all, he felt sure, would regret that both Col. Sheldermine and the Master of Sempill were unable to be present as well. In conclusion, he asked for the health of Sir Arthur and Lady Whitten Brown to be drunk in the usual J.Ae.C. fashion.

Those present included prominent men from all branches of aviation, both trade and service, and every one will agree that they had a most enjoyable evening. Even the menus were in keeping with the rest of the entertainment, couched as they were in entertaining terms by, we believe, Mr. Geoffrey Dorman. The reference to "roast monkey with brown stuffing" caused some apprehension when Bert Hinkler saw it, and we understand that he immediately sent round to his hotel to ascertain that his own pet marmoset was still alive.

CIRCUIT OF EUROPE

THE Aero Club of Germany announces that the entries closed on December 15 for the Circuit of Europe, which is to be flown during this year, and that through their aero clubs the following countries have entered machines: France, Italy, Germany, Poland, Switzerland and Czecho-Slovakia. It is regretted that Great Britain will not be represented, the reason given by the German Aero Club being that British private machines are too heavy to be included within the weight limitations imposed by the regulations. Regret is expressed that the Aero Club of Germany did not find it possible to modify the regulations to an extent which would have admitted British light planes.

The Circuit of Europe will be one of approximately 7 500 km. (4,660 miles), of which the last 155 miles will constitute a speed course over which the competing machines will fly at full speed.

The contest will probably be held during August, 1932, and the start will be at the Tempelhof aerodrome, Berlin. The machines will then fly via Poland, Czecho-Slovakia, Austria, Hungary, Yugoslavia to Italy (Rome). At Rome ends the first of the three great stages into which the con-

test is divided. Each stage will be of as near one-third of the total as is practicable, *i.e.*, 2 500 km. (1,550 miles). Competitors will be given two days only for covering each of the main stages, so that the whole of the Circuit of Europe will have to be flown in six days.

From Rome the course will be laid over Southern France, Switzerland, Germany, to Paris, where the second main stage ends. It is likely that at Paris there will be a day's rest for competitors.

The third and last stage is from Paris via Holland, Germany, Denmark, Sweden, to Berlin, where a triangular course, taking in Tempelhof and Staaken, will be chosen for the final speed contest of 155 miles. The third turning point in this triangle has not yet been announced. Prizes totalling 300,000 francs have been announced, of which the first prize will be one of 100,000 francs.

As a result of Great Britain's non-participation, the competing machines will not visit England, and thus Londoners will be deprived of an opportunity of seeing the foreign machines taking part. The Royal Aero Club will, however, be relieved of the necessity of organising a British control.

An Independent Test Pilot

FIRMS who have cut down their staffs and who do not feel justified in employing a full-time staff pilot will no doubt be interested to hear that Mr. R. H. Stocken is now practising as a test pilot and aeronautical consultant. He has opened an office at 56, Fleet Street, London, E.C.4 (Telephone: Central 3226). There are many aircraft, aero engine and accessory firms who find their own pilot away or engaged on some other work when an urgent test is required, in which case the services of a pilot with such experience as Mr. Stocken has should be invaluable. Mr. Stocken speaks French fluently, and his services could no doubt be profitably made use of for demonstrating to representatives from foreign countries. Mr. Stocken's

flying experience extends back to the beginning of 1916, and from that date he has been employed by the Royal Air Force and by several aircraft firms in capacities ranging from instructor at the Central Flying School, Upavon, where he was passed as category A.1, to personal assistant to the General manager of the de Havilland aircraft firm. During his civil time he has worked for the Aircraft Disposal Co., Ltd., Gloster Aircraft Co., de Havilland Aircraft Co. and the Air Transport and Travel Co.

U.S. Navy Manœuvres

ELABORATE fleet manœuvres are to take place between the Hawaiian islands and the Californian coast in February and March. The naval airship "Akron" will take part in the coast defence of California.

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As a demonstration of high speed over long distance, a Travel Air Mystery Ship, as flown in Europe by Capt. Hawks, would stand a good chance of making Karachi to London in 25 hr.

I would venture to suggest that Great Britain could produce a high-speed demonstrator to make the flight in 21 hr.

S. T. B. CRIPPS.

New York City,
December 7.

[Our correspondent seems to have overlooked the fact that the Fairey Long-distance Monoplane (Napier engine) was designed for a purpose totally different from that of machines built to carry mails or passengers quickly over long distances, i.e., for the purpose of attacking the world's long-distance non-stop record without refuelling. For that particular purpose, we venture to think, America has nothing capable of beating the Fairey. The flight from Cranwell to Egypt was merely a test flight made to find out under actual working conditions whether any small undiscovered "snags" were present in the machine, engine, equipment or installation. No one would deny that a totally different type of machine could be built to make much better time over the various distances by flying shorter stages and refuelling several times on the way. This is not, of course, the purpose of the particular machine in question. Were the incentive present we do not doubt that British aircraft firms could produce machines to equal, or possibly even excel, the times and distances quoted by Mr. Cripps.—EDITOR.]

"FLY BRITISH" IN NEW ZEALAND

[2785] Considerable criticism has been levelled at the Wellington Aero Club in their decision to purchase an American plane for passenger carrying. The explanation of the club secretary is rather unconvincing, i.e., that "a suitable British machine was not available." I understand the requirements were for a four-passenger biplane (cabin) with a high rate of climb, able to take off and land in a small aerodrome surrounded by obstacles on three sides. I have heard experienced pilots describe the Wellington aerodrome as being the world's worst, as far as taking off and landing are concerned. Now, Sir, the "Buy British" is at fever heat in N.Z. at present, and I consider it my duty, as one who is very proud of the British aircraft industry's achievements, and concerned for its future career, to bring before those responsible, their inability to meet this demand. As yet there is no American aircraft registered in the 80 to 90 at present in N.Z., thus the storm of protest as per enclosed Press cuttings. The British car manufacturers have sent representatives to N.Z. to study local requirements, and are beginning to reap the reward for their initiative. I respectfully suggest the aircraft constructors do likewise, as the market is theirs for the asking. American manufacturers are striving hard to get an opening here, but in the past have been unsuccessful. My name must remain anonymous, but you are at liberty to supply same to any English aircraft constructor requiring further information.

"PROGRESS."

Dearman, New Zealand,
November 6, 1931.

THE AIR SCOUTS ASSOCIATION

[2786] Some time ago you were good enough to publish my letters regarding the above movement, for which I thank you, and I would be grateful if you could see your way clear to publish the following.

Since the above movement first became a reality, over six months ago, it has been well advertised in practically every part of the country, and by letters received, it is going to fill a gap in aviation which has been long overdue; whereas the majority of average youths could not even contemplate taking to the air, owing to the necessary expense, but by joining the Air Scouts this is made possible.

We are in a position to say that there are in every town numerous youths only waiting for the chance to enter this movement, but we are unable to satisfy their wants owing to lack of financial support; surely it must be realised that this movement is a step forward in the right direction and worthy of assistance. I would say that we are, however, looking forward to a more prosperous year, as, with Col. The Master of Sempill as a patron, and help from the Air League of the British Empire, and the willingness of Mr. Gordon England, Chairman of the British Gliding Association, to assist us, it looks very promising.

The object of this Association is to help the youths of this country to take an active part in aviation; by joining the Air Scouts they will be given training on all things dealing with aviation, be taught gliding and later flying; all instruction and squadron commanders will give their services free. Age for joining is 14, and the subscriptions are 2s. 6d. entrance fee, this to cover cost of badge, and 3d. per week for those under 21 and 6d. per week for those over 21.

I would like to point out that we would welcome the assistance of anyone wishing to form and run an Air Scout Squadron, having the necessary qualifications or financial aid.

Those wishing to assist us should communicate with W. Davison, 31, Cheviot Crescent, Billingham on Tees, Co. Durham.

W. DAVISON,
Chairman.

December 27, 1931.

THE JUNIOR AERO CLUB DINES "BERT"

BERT HINKLER, like all people who perform outstanding feats in the aviation world, has had to pay for his greatness by a surfeit of dinners in his honour. During the past two or three weeks he has been dined and wined by nearly every aeronautical body of any standing, as well as by many civic authorities. The latest to pay tribute to his greatness is the Junior Aero Club, and this was staged in a vociferous and no uncertain manner, in the Club premises, Ham Yard, Great Windmill Street, London, on December 22.

Sir Arthur Whitten Brown was in the chair, and in proposing the health of "Bert," he read a letter from Col. the Master of Sempill, who regretted his inability, owing to a previous engagement, to be present to preside. Then, in a short but extraordinarily sincere and appropriate speech as from one pilot to another, Sir Arthur asked the assembly to drink the health of their guest.

Whatever reception Bert has had at other gatherings, this one certainly moved him very much more, and it was some considerable time until the spontaneous and unusual show of appreciation could be quelled. This was only done by the toast master, Mr. G. P. Olley, asking for the health of Mrs. "Bert" to be drunk. Again the cheers broke out, and once more it was a long time before Bert Hinkler was allowed to reply; when he did, he said that the difficulty of facing such an overwhelming reception would, he hoped, be realised, and he trusted that any lack of words of his with which to express his appreciation would be overlooked. He said that all this came about by his just going out on a little tour to see the world and because he kept the nose of the machine straight, he arrived back in England again. At times, he said, it was very lonely; in fact, over the water when the evening approached it was certainly his idea of "hell." Later, however, he said, he grew more cheerful, and the wonderful weather effects made everything ex-

tremely pleasant; so much so that he felt it must be like heaven—that is, if the ladies would allow that there could be heaven without their being present. Such a reception, he said, repaid any effort he had made by his flight, which, after all, was only done to demonstrate the super-excellence of British aircraft and engines to the world. He deprecated his own personal part of the flight, for he said many pilots, by real slogging hard work on air lines, were daily doing far more than he had done, as his trip was largely in the nature of a joy ride.

When called upon to say a few words, Mrs. Hinkler said that it was the most thrilling party of her life, and she asked the Junior Aero Club to accept her very grateful thanks for the evening.

Mr. Eric Teesdale, the presiding genius and secretary of the club, said that it was always his pleasure on such an occasion to propose the health of the chairman, but, he said, it was their invariable custom that the speeches should be short though potent, for they always came from men who did things and who did not talk. He noted with satisfaction that as usual they had been able to secure the presence of many important pilots, and one and all, he felt sure, would regret that both Col. Sheldermine and the Master of Sempill were unable to be present as well. In conclusion, he asked for the health of Sir Arthur and Lady Whitten Brown to be drunk in the usual J.Ae.C. fashion.

Those present included prominent men from all branches of aviation, both trade and service, and every one will agree that they had a most enjoyable evening. Even the menus were in keeping with the rest of the entertainment, couched as they were in entertaining terms by, we believe, Mr. Geoffrey Dorman. The reference to "roast monkey with brown stuffing" caused some apprehension when Bert Hinkler saw it, and we understand that he immediately sent round to his hotel to ascertain that his own pet marmoset was still alive.

CIRCUIT OF EUROPE

THE Aero Club of Germany announces that the entries closed on December 15 for the Circuit of Europe, which is to be flown during this year, and that through their aero clubs the following countries have entered machines: France, Italy, Germany, Poland, Switzerland and Czecho-Slovakia. It is regretted that Great Britain will not be represented, the reason given by the German Aero Club being that British private machines are too heavy to be included within the weight limitations imposed by the regulations. Regret is expressed that the Aero Club of Germany did not find it possible to modify the regulations to an extent which would have admitted British light planes.

The Circuit of Europe will be one of approximately 7 500 km. (4,660 miles), of which the last 155 miles will constitute a speed course over which the competing machines will fly at full speed.

The contest will probably be held during August, 1932, and the start will be at the Tempelhof aerodrome, Berlin. The machines will then fly via Poland, Czecho-Slovakia, Austria, Hungary, Yugoslavia to Italy (Rome). At Rome ends the first of the three great stages into which the con-

test is divided. Each stage will be of as near one-third of the total as is practicable, *i.e.*, 2 500 km. (1,550 miles). Competitors will be given two days only for covering each of the main stages, so that the whole of the Circuit of Europe will have to be flown in six days.

From Rome the course will be laid over Southern France, Switzerland, Germany, to Paris, where the second main stage ends. It is likely that at Paris there will be a day's rest for competitors.

The third and last stage is from Paris via Holland, Germany, Denmark, Sweden, to Berlin, where a triangular course, taking in Tempelhof and Staaken, will be chosen for the final speed contest of 155 miles. The third turning point in this triangle has not yet been announced. Prizes totalling 300,000 francs have been announced, of which the first prize will be one of 100,000 francs.

As a result of Great Britain's non-participation, the competing machines will not visit England, and thus Londoners will be deprived of an opportunity of seeing the foreign machines taking part. The Royal Aero Club will, however, be relieved of the necessity of organising a British control.

An Independent Test Pilot

FIRMS who have cut down their staffs and who do not feel justified in employing a full-time staff pilot will no doubt be interested to hear that Mr. R. H. Stocken is now practising as a test pilot and aeronautical consultant. He has opened an office at 56, Fleet Street, London, E.C.4 (Telephone: Central 3226). There are many aircraft, aero engine and accessory firms who find their own pilot away or engaged on some other work when an urgent test is required, in which case the services of a pilot with such experience as Mr. Stocken has should be invaluable. Mr. Stocken speaks French fluently, and his services could no doubt be profitably made use of for demonstrating to representatives from foreign countries. Mr. Stocken's

flying experience extends back to the beginning of 1916, and from that date he has been employed by the Royal Air Force and by several aircraft firms in capacities ranging from instructor at the Central Flying School, Upavon, where he was passed as category A.1, to personal assistant to the General manager of the de Havilland aircraft firm. During his civil time he has worked for the Aircraft Disposal Co., Ltd., Gloster Aircraft Co., de Havilland Aircraft Co. and the Air Transport and Travel Co.

U.S. Navy Manœuvres

ELABORATE fleet manœuvres are to take place between the Hawaiian islands and the Californian coast in February and March. The naval airship "Akron" will take part in the coast defence of California.

Airism from the Four Winds

R.A.F. East African Tour

No. 14 (BOMBER) SQUADRON, stationed at Amman, will send four Fairey III F aircraft on a tour through Kenya and Tanganyika in January and February, starting from Heliopolis on January 11. The aircraft will take part in various military exercises by units of the King's African Rifles in both territories. Nairobi, Mombasa, Dodoma and Dar-es-Salaam will be visited. Among the personnel on the flight will be Flt. Lt. R. L. R. Atcherley (late of the High-Speed Flight), F/O. L. E. Jarman and F/O. R. J. Cooper. The last named is a specialist in air pilotage, and has recently been on the staff of the F.T.S. at Abu Sueir. The Middle East Command will be represented by Wing Com. A. T. Harris, O.B.E., A.F.C., *q.s.*, who served in 1914 with the Rhodesian Regiment, and in 1927 commanded No. 58 (Bomber) Squadron at Worthy Down. He is the inventor of an electric truck for moving heavy aircraft, which enables two men to do the work of 12. This flight through East Africa is to take the place of the flight to the Cape, which has been an annual event for some years past, but which will not take place this year, possibly for reasons of economy.

Spanish Flight Across the Sahara

Two Spanish military airmen, Capt. Rodriguez Diaz and Lt. Carlos de Haya Gonzalès, have just completed a fine non-stop flight of 2,500 miles from Seville to Bata, in Spanish Guinea. Flying a Breguet 19 (600 h.p. Hispano-Suiza) they left Seville on Christmas Eve, and, taking the direct route across the Sahara, arrived at Bata on Christmas Day, having taken 27 hr. 10 min. Shell spirit was used throughout.

Lady Bailey Obtains Blind Flying Certificate

LADY BAILEY has just obtained a certificate for blind flying, after a course of instruction at the Air Services Training School at Hamble. Lady Bailey hopes to obtain a full commercial air pilot's licence.

Mrs. Cleaver's Flight to Morocco

MRS. CLEAVER, who has been held up at Lyons by bad weather since December 23, has decided to abandon her trip to Morocco, and is returning to England.

Indian Woman Delegate Flying to India

MRS. SUBBARAYAN, who was one of the two women delegates to the India Round-Table Conference, left Croydon on December 26 by the Karachi air mail en route for Bombay.

Fraulein Beinhorn's Adventure

FRAULEIN BEINHORN, the German airwoman, who left Berlin on December 4 for the Dutch East Indies, had to make a forced landing, owing to engine trouble, at Bandai-Dilam, north of Bushire, on December 17. Her machine

being damaged she had to walk across desert land to Bushire, taking about ten hours for the journey—some anxiety meanwhile having been felt for her safety.

The Master of Sempill's Air Greetings to the Premier

FLYING from Hanworth to Lossiemouth, Col. the Master of Sempill dropped a Christmas card inscribed "From one flying Scot to another" on the Premier's Lossiemouth home. The Master of Sempill had intended dropping his message on Christmas Day, but heavy gales delayed his arrival at Lossiemouth. During a part of the journey the Master of Sempill was accompanied by his mother, Lady Sempill.

Mr. Mollison's Troubles

MR. J. A. MOLLISON, who is returning from Egypt, where he crashed on November 14 last while attempting to beat the England-Australian record, left Konian—where he had been detained by the Turkish authorities—on December 21, and was forced by bad weather to land near Bourgas, in Bulgaria. Continuing after some delay there, he lost his way in a fog while crossing Bavaria on December 27, and made a forced landing at Maltersdorf. He was unhurt, but his machine was slightly damaged.

Spanish Pilot's "Puss Moth"

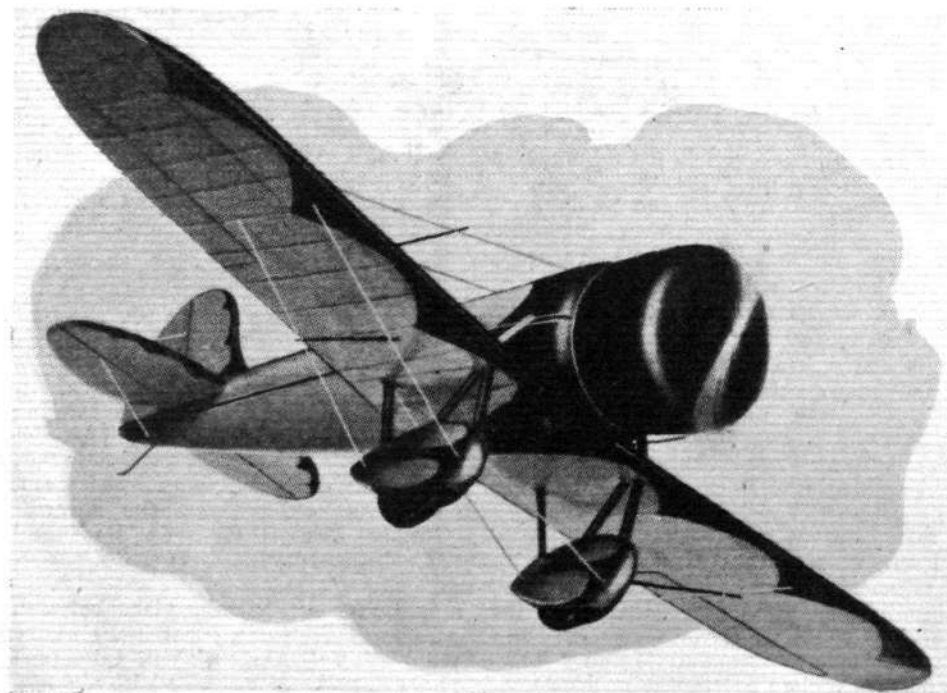
CAPT. IGNACIO JIMENEZ, the Spanish pilot who flew the South Atlantic, is planning a new world flight of about 40,250 miles, for which he will use a D.H. "Puss Moth." He proposes to fly from Madrid down the West Coast of Africa to Cape Town, thence up the East Coast to Egypt, India, and on to Australia. From here he will return by way of Japan, China, Berlin and Paris.

Our Cover

WE think our readers will agree that Mr. Charles Dickson has succeeded admirably in his pictorial conception of "Memories of 21 Years' Progress," which forms the subject of our front cover this week. Apart from the general artistic effect—pleasing both in colour and execution—the past history of aviation, and likewise that of the famous Cellon Dope, is well told in the limited space at the artist's disposal. Cody's prize-winning machine flying over Salisbury Plain in 1911, the Schneider Contest and Hendon Happenings from 1914 onwards, Brooklands, Lympne, and many other events to date, can be discovered upon a close inspection of the design. It may be of interest to note here that 1932 celebrates the 21st anniversary of the commencement of Cellon manufacture.

Belgian Anti-aircraft Defence

THE Belgian Government has placed an order with Vickers, Ltd., for eight sets of anti-aircraft equipment, after having conducted completely successful experiments with this equipment last September on the coast, near Middlekerke. The Vickers' anti-aircraft gun has a range of about five miles and can fire 25 shells a minute. It is controlled by an electric predictor, which works out the angles of elevation and deflection, allowing for the time of the shell's flight. The Belgian Army, equipped with Fairey Firefly fighters and Fox bombers, and Vickers' anti-aircraft ground units, will be equipped for air defence on a scale of efficiency far above its numerical importance.



AN AMERICAN SPEEDSTER:

A fine flying view of the Travel Air model R which shows the cleanliness of the under-carriage with its wire bracing.

The Industry

PETRO-FLEX TUBING

EARLY experience with internal-combustion engines soon showed the necessity for a new "conduit" for fuel, that would not be affected by constant vibration. Aircraft fuel systems require a tubing with many virtues, including light weight, flexibility, durability, strength, and, while permitting an unimpaired flow, it has to remain impervious to any detrimental action of fuel.

Petro-Flex tubing has obviously met these conditions if judged from its extensive adoption in aircraft alone. No rubber or rubber-treated material is used in this flexible tubing. It is constructed with an external armouring, an outer wall, an inner armouring, and a core lining.

Thus there are three walls. The inner wall, which carries the fluid, consists of a natural product chemically treated, and is fitted in tuluar formation, thereby eliminating lateral and transverse joints. The layers are of varying thicknesses to meet pressure and volumetric conditions. A canvas, specially woven, treated and proofed, is used for the outer wall, fitted longitudinally to eliminate transverse joints.

The texture and composition of the internal lining is such that the internal wire which forms the helically-wound armouring has practically to be embedded in it, giving a smooth bore and unimpaired flow. This wire is true to gauge and solid drawn to give the complete wetted surface a minimum of hydraulic resistance.

For the external armouring the wire is of a similar nature, but is so fitted that, while lying well-housed in the tube convolution, it sits proud of the outer canvas, thus forming a protective armour against the possibility in service of damage from rough usage or chafing.

As the internal and external armouring are mechanically wound through gearing they are true to pitch, and there is no possibility of unequal stress or local binding when flexed in service.

There are over 20 different sizes of Petro-Flex and two classes—Aircraft and Commercial. The inner petrol-resisting lining is similar in both classes, but the outer covering differs in specification and colour. Petro-Flex tubing is manufactured by Petro-Flex Tubing Co., Ltd., Cassiobury Works, St. Albans Road, Watford, and the



The value of aerial photographs for mural decoration is admirably demonstrated in this view of the new showroom of Aerofilms, Ltd., at Heston Air Port. These photographs are of course their own work.

sole selling agents are Hobdell, Way & Co., Ltd., 20, St. Clare Street, Minories, London, E.1.

AN AUTOGIRO BULLETIN

THE Cierva Autogiro Co., of Bush House, Strand, W.C.2, now issue a monthly bulletin which is very interesting, and contains a large amount of informative matter concerning their products. All those who are in touch with this unorthodox machine should write for a copy, mentioning *FLIGHT*.

MOTHS FOR BRAZILIAN ARMY

THE de Havilland Aircraft Co., Ltd., have recently concluded a contract with the Brazilian Ministry of War for 15 "Moth" type training aircraft for their 1932 programme. This has particular significance in the fact that these "Moths" are the first British aircraft to be placed in the Brazilian Army, and were allotted after comparison with seven other types put forward by four different nations.

The new military training type "Moth" fulfils all the desideratum of economical training. The light and economical Gipsy engine of 120 h.p.

has a world-wide service organisation behind it, as the de Havilland overseas factories and agents hold adequate stocks of spare parts.

The programme of Brazilian training includes night flying, "blind" flying, wireless operation, gunnery practice, bomb dropping and photography, all of which duties may be accomplished on the 15 machines to be supplied by fitting the various military gear, as alternatives, when required. The machines will be equipped for inverted flying, which will be carried out also during display work, similar to the Royal Air Force at Hendon. It will, therefore, be seen that many new British units of equipment also will be introduced into this important market, as, apart from the actual machines, cameras and wireless gear, etc., will be supplied from this country.

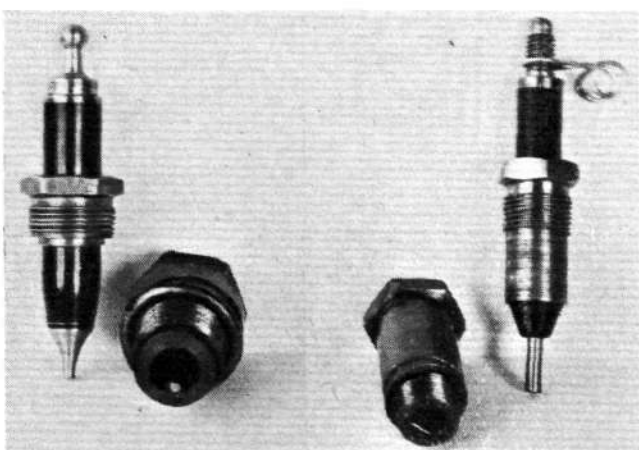
The de Havilland Aircraft Co., Ltd., have also supplied similar machines recently to the Governments of Portugal, Sweden, China, Iraq and Egypt.

A.S.T. DEVELOPMENTS

OUT of the ordinary in brochures is the new issue by Air Service Training, Ltd. (of Hamble, Southampton), which gives very full details of all the courses of flying instruction to be had. Just published, it contains details of the Air Ministry flying tests under all categories. The type of instruction given at a school like this is probably unequalled anywhere in the world, and this view is borne out by the large number of pupils who have come from abroad. Particularly interesting are the courses of instruction in night and blind flying, and those for flying instructors.



K.L.G. plugs are widely used in aircraft and those here illustrated are (left) the V.4.B and (right) the 633. The latter is made specially for such engines as the Gipsy and has a very small body. These aircraft plugs are beautifully finished and tested under extreme conditions to Air Ministry specifications before they are passed as fit for aircraft use.



FIT AND FORGET

K.L.G. Aero Sparking Plugs have been developed to stand the arduous conditions found in modern aeroplane engines, and as most pilots will admit they seldom give any trouble even during long periods of full throttle work. A few details of their construction should therefore prove of interest. To start with, mica is used for the insulation as it is one of the few substances with which absolute uniformity can be obtained; moreover, it is a material which may readily be turned into any desired shape. This is a point of which good use is made inside the plug where the insulation is exposed to the heat and oil of the engine; here it is shaped into a stepped cone whose sharp edges prevent an accumulation of oil or carbon on the surface which would, if allowed to grow, cause the plug to cease functioning. Another feature which ensures that the plug will continue working under really trying conditions is the coating of copper which is fitted over the central electrode; this copper, being of high heat conductivity, cools the electrode as well as assisting in cooling the mica installation.

"COANAILIUM"—A SPECIAL ALLOY

TO MEET the increasing demand for an aluminium alloy that will resist the action of sea-water and damp atmospheres, a special aluminium alloy known as "Coanailium" has been produced by Robert W. Coan, Ltd., The Aluminium Foundries, Coan House, Duncan Street, Islington, London, N.1. This alloy has been subjected to a six-months' sea-water test in the ebb and flow of tides and passed it successfully. A report upon its tensile strength in bar form from the A.I.D. Test House at Kidbrooke was as follows:—

Yield per sq. in., 10.80 tons.
Tensile per sq. in., 13.28 tons.
Elongation, 8.5 per cent.
Brinell hardness No., 69.1.

This Company is engaged upon the production of castings for gun mountings, crank cases, pistons, carburetors, clinometers, barometers, joystick controls, wireless instruments, and numerous other parts for engines and aircraft. During the war many tons of aluminium castings were produced in their foundries every week, and they

count as one of their best achievements the die casting of a 36-in. diameter scarf gun ring. Experts did not believe this method practicable with so difficult a pattern until Mr. Coan, the founder of the business, proved it, and, incidentally, solved the problem of the acute shortage prevailing at the time. Over 20,000 were produced and gave entire satisfaction.

It is hardly necessary to stress the value of a light, strong alloy that will also resist sea-water. The introduction, therefore, of "Coanailium" into this specialised field is of considerable value to manufacturers of sea-going aircraft.

THE "SOLON" IRON

AMONG the suggestions for Christmas made in "The Industry" in FLIGHT for December 11 was the "Solon" Electric Soldering Iron. This iron (which is marketed by Brown Bros., Ltd., of Great Eastern Street, E.C.2) does, if one is to judge from the number of inquiries about it, fill a want in a most satisfactory manner. This is not surprising when it is realised how much simpler soldering is made by using an electric iron of this type with its constant supply of heat, and at a retail price of 7s. 6d. it is undoubtedly a very good bargain.

INDISPENSABLE FOR TESTS

A STRUT THERMOMETER is invaluable for test purposes on aircraft, and may be used with great advantage when on cross-country flights where a sudden change of air temperature will signify a change in wind direction to the meteorological-minded pilot. Such an instrument is usually large, but in some cases it may also be light, and the type which is marketed by S. A. Calderara, of Springfield Works, Springfield Gardens, Clapton, E.5, is a particularly good example of this.

SALESMANSHIP

HENLYS, LTD., who are agents for Avro aircraft at Heston Aerodrome, Middlesex, are now offering free flying tuition to the purchaser of any aircraft from them. They supply not only "Avians," but also every

make of new light aeroplane on the market, and in addition have a stock of reconditioned second-hand machines. Any of these may be bought on the hire-purchase system, or, if desired, motor-cars will be taken in part exchange. The flying instruction scheme entitles the purchaser to receive eight hours' dual instruction from the instructors at the Airwork School of Flying, Heston, and this instruction will be given on the purchaser's own machine. In addition, there will be one hour's free training in air pilotage at the Ferguson School of Navigation, which is operated by Capt. G. W. Ferguson, in order to supply amateurs with sufficient knowledge to find their way about the country under varying conditions. A small brochure is available from Henlys for those who write mentioning FLIGHT, in which will be found full details of the scheme, together with a good deal of other information concerning flying matters.

AN OIL TRADE CHANGE

SILVERTOWN Lubricants, Ltd., of Minoco Wharf, London, E.16, inform us that Mr. Arthur Stephens, who has energetically managed the business since 1921, severed his connection with the company as from the beginning of December, in order to join a new undertaking. We are sure that Mr. Stephens' many friends in the lubricating oil trade will wish him well in whatever future task he undertakes.

FOR HEAT TREATMENT

ELECTRICAL furnaces are already widely used by aircraft manufacturers for the heat-treatment of steels and light alloys, and, in fact are a necessary part of the workshop equipment of any manufacturer whose construction includes aircraft built in metal. G.W.B. and Wild-Barfield electrical furnaces and ovens are widely used for this purpose. A matter of interest is the news that the makers of these furnaces, G.M.B. Electrical Furnaces, Ltd. (Gibbons Bros., Ltd., and Wild-Barfield Electrical Furnaces, Ltd.), of Elecfurn Works, North Road, Holloway, London, N.7, have entered into an arrangement with the Demag-Elektrostahl G.m.b.H. of Düsseldorf, whereby the former will have the sole selling rights of the Demag Electric Aluminium Melting Furnaces in the British Isles. These melting furnaces are particularly suitable for everyone who deals with light alloy and aluminium castings. They are at present available up to a capacity of about 2 tons with an in-put of 500 kilowatts.

MECHANICAL PROPERTIES OF NICKEL ALLOY STEELS

UNDER this title a very useful booklet has been issued by The Mond Nickel Co., Ltd. It contains a convenient summary of the mechanical properties of a large range of nickel alloy steels, the specifications and typical properties of which are given.

PASSING OUT

R.A.F. CADETS, CRANWELL

THE following are extracts from the Report of Air Vice-Marshal A. M. Longmore, C.B., D.S.O., Commandant of the Royal Air Force College, Cranwell, at the passing-out inspection of Flight Cadets, December, 1931. The inspection was carried out by Air Vice-Marshal T. I. Webb-Bowen, C.B., C.M.G.

The present strength of the College is 128 Flight Cadets. The present IV Term, now passing out, numbers 31 Cadets.

The conduct and discipline of the Cadet Wing, during the period under report, has been very good and there has been a noticeable decrease in the number of minor offences.

One offence was one against Flying Regulations and to this, although I did not find it necessary to take very severe disciplinary action, I wish to draw special attention. The Flying Regulation contravened in this case was that which forbids turning at low heights except under special circumstances. This manoeuvre when indulged in carelessly or ignorantly, in particular by pilots still under training, is a prolific cause of accidents. Pupils are given experience of low flying, in company with their instructor, in order to give them a measure of skill in case they are forced by bad weather or other emergency to come down to low heights whilst on solo flights. Flying and turning low under other conditions is strictly forbidden.

Thirty-one Flight Cadets of the IV Term have completed their flying training. Those going to Fighter Squadrons have qualified on Siskins and the remainder on Atlas aircraft. In addition, those Flight Cadets going to Day Bombers Squadrons have had some dual experience on the Fairey Fox. All the Flight Cadets passing out have completed over 20 hours solo on Service types and an average total flying of 111 hours on all types.

It is with deep regret that I have to report one serious flying accident since July. On November 24, 1931, Flight Cadet Norman Gilly Dathan crashed in an Atlas aeroplane and subsequently died on November 30 as the result of his injuries. This Cadet had completed eight hours solo flying in the Atlas and was regarded as a very satisfactory pupil. The accident occurred in the vicinity of one of the practice landing grounds and was due, so far as can be ascertained in the absence of complete expert evidence, to the pilot stalling the aeroplane during a climbing turn at a height of from 100 to 200 ft. from the ground, which allowed insufficient height for him to regain full control before the aircraft struck the ground.

In connection with this accident, I have to record the very prompt and praiseworthy action of three labourers who pulled Flight Cadet Dathan out of the pilot's seat whilst the machine was burning. I am glad to say that we have been able, by private subscription amongst the Officers and Cadets of the Command to arrange for the presentation of mementoes to the three young men concerned, Mr. C. W. E. Barnard, Mr. J. G. Clark and Mr. F. L. Wilson.

An examination of the more serious accidents during the past six years reveals the fact that these mostly occur in the Cadet's third term, in his early solo on Service types, when his skill as a pilot may not have reached the level of his confidence.

A commencement has been made at the College with the introduction of Instrument Flying, and two Avros are already in the Flights fitted with the necessary hoods and special instruments.

In English Literature and History the general standard of the term passing out is high, though it leaves a record of industry rather than of original thought.

Two external lectures have been given this term, one on Mount Kamet by Mr. F. S. Smythe, and the other on High Speed Flying by Flight-Lieut. Stainforth. In connection with these lectures, it is of interest to record the recent installation of Sound-Film Apparatus in the Command Cinema.

In accordance with a recent decision of the Air Council to increase the amount of time devoted to the instruction of Cadets in the keeping of accounts of non-public funds, the periods hitherto allotted to instruction in R.A.F. Organisation for the IV Term in the set programme of work have been transferred to Administration. This provides for sufficient instruction to be given in the general principles of Service Accounting and the keeping of non-public accounts, also in Stores and Store Accounting procedure, which will be of considerable benefit to Cadets when they become junior officers in the General Duties Branch.

Since July, the total number of Cadets admitted to hospital was 34 as compared with 55 admitted during the period December, 1930—June, 1931.

Of these, 4 were due to motor-cycle accidents, 1 was due to a flying accident, 13 were due to other minor accidents, and 16 were cases of illnesses.

The Rugby match against Sandhurst was lost by 25 points to 8 points, and against Woolwich the College won by 14 points to 5 points.

The standard of Association Football has improved considerably. Of 14 matches played, 6 were won and 6 lost. The match against Woolwich resulted in a draw.

Arrangements are being made, next Term, for instruction and practice in refereeing in such games as Association, Rugby, Hockey and Athletic sports, the object being to enable Cadets, even though themselves not expert in those games, to referee and supervise the recreation of their men in their future units.

The Beagles have been hunting regularly (twice weekly) since the middle of September, and have shown very good sport. The average number of Cadets taking part is noticeably larger than last season.

The R.M. Groves Memorial Prize, for the best all-round pilot in the senior term, has been awarded to Flight Cadet W. P. Sutcliffe.

The Sword-of-Honour, presented to the best all-round Flight Cadet in the Senior Term, has been awarded to Flight Cadet R. H. E. Emson.

AIRCRAFT APPRENTICES, HALTON

Air Marshal Sir Geoffrey Salmond inspected the School of Technical Training for R.A.F. Apprentices at Halton, Bucks, on December 16, on the occasion of the passing-out of the 19th entry. The apprentices who have passed out now become airmen in the Royal Air Force.

The following are extracts from the report by Air Commodore N. D. K. MacEwen, Air Officer Commanding, Royal Air Force, Halton:—

The apprentices now passing-out from Halton form the 19th entry to pass into the service on completion of the course of apprenticeship training. Of the 458 boys originally attested, 20 were posted to the Electrical and Wireless

School for training as electricians; 10 were granted discharge by purchase, 10 were discharged on medical grounds; 23 were discharged as "unlikely to become efficient airmen," 1 was remustered to aircraft-hand, 1 died, 40 were transferred to junior entries, while 40 were transferred from senior entries; leaving 393 to pass out from No. 4 Apprentices' Wing, Halton.

These have been trained in the following trades: Fitter aero engine, 188; metal rigger, 143; fitter armourer, 15; fitter driver, petrol, 32; coppersmith and sheet metal worker, 15.

As a result of the final examinations 50 aircraft apprentices, representing 12.7 per cent. of the entry, have been classified as leading aircraftmen, 269 have been classified as aircraftmen, first class, 61 have been classified as aircraftmen, second class, 2 aircraft apprentices failed to qualify, and 11 were not examined owing to sickness.

This entry has maintained the high standard of discipline set by previous entries. It has been helped to a very large extent by the institution of sergeant and corporal apprentices.

Improvement has been shown in physical training. Instruction in this important branch of a boy's training has improved as the establishment of physical training instructors has been increased, and it has been found possible for them to take refresher courses.

The technical training of this entry has been accomplished with satisfactory results.

Fitters, Aero Engine.—The completed exercises of the apprentices of this trade show a very high standard of skill in their basic fitting work. This part of the apprentices' training is, perhaps, somewhat monotonous, but it must be remembered that it is the basis of craftsmanship.

Fitters, Armourer.—The standard of proficiency in fitting is again well up to the high standard required for armament work.

Fitter, Driver, Petrol.—The syllabus for training apprentices of this trade has been the same as for the Fitter, Aero Engine, so far as their basic fitting is concerned and their exercises testify to their ability as fitters.

This is the last entry of apprentices to be trained in this trade.

Metal Rigger.—The January, 1929, entry is the second entry to be trained in this trade in No. 4 Wing. They have benefited considerably by the experience gained in the training of the 16th entry. The basic syllabus has



The Halton R.A.F. Apprentices inspected by Air Marshal Sir Geoffrey Salmond, K.C.B., K.C.M.G., D.S.O., on December 16.

been developed on the lines of a light metal fitter. The completed exercises show a very good standard of metal work.

Coppersmith and Sheet Metal Worker.—Fifteen apprentices commenced training in this trade. The apprentices of this trade have not shown the usual keenness in their training and although the standard of work of about 50 per cent. of the entry has been of a high order, the results generally are somewhat disappointing.

Educational Training.—This entry has created the impression that they are not up to the usual standard of apprentices on joining. They have required considerably more driving in their school work to maintain a satisfactory general average, but in spite of every effort, the number who have failed to qualify educationally is considerably above the normal. I want those apprentices who have failed to realise that they must work hard to pass their educational tests at the first available opportunity; they will find that the sooner they take this test the easier it will be.

In no previous entry has the difference in ability between fitters and metal riggers been so marked. The system of allocation of new entries to trades is that the boy who passes in highest has the best chance of being trained in the trade of his choice. This results in the fitter trades obtaining the greater proportion of the best boys.

I think that this is because neither boys or their parents have any idea of the requirements of the trade of metal rigger, and feel that the chances of finding employment in civil life are better for the fitter, aero engine, than for this other trade of which they have never heard. The question of the alteration of the name of the trade will be dealt with in due course. But it must be realised that any change of name is a matter for very serious consideration. The metal rigger is trained to a very high degree of skill in metal fitting. To introduce the name of fitter as at present understood, implies a knowledge and skill of hand in engines. We are not alone in our difficulty over the name for this trade. The aircraft industry is faced with exactly the same question. There has been an enormous change over from wood to metal work during the last few years in furniture, fittings, buildings, vehicles, etc. Parents should realise that metal riggers in the Royal Air Force have been trained to a high degree of skill in what is now a very useful and universal trade.

Health.—The general health of the entry has been satisfactory. There were no epidemics of infectious disease.

Awards.—The Lord Wakefield Scholarship has been awarded to Francis, C. C.

Cadetships.—Cadetships have been offered to Sanders, A. T., and Francis, C. C.

Elliott Memorial Prize.—The Elliott Memorial Prize has been awarded to Leates, J.

ELECTRICAL AND WIRELESS SCHOOL, CRANWELL

The following are extracts from the report by the Commanding Officer at the Passing-Out Inspection of Aircraft Apprentices on December 17, 1931:—

The strength of the entry on arrival at the school was 20. A high standard of discipline has been maintained.

The standard of training reached by the apprentices of this entry has not been quite up to that of their predecessors. Of the 20 apprentices examined by the Central Trade Test Board, two have failed, and have been recommended for six months' further training. Of the remainder, 4 have qualified as L.A.C., 10 as A.C.1, and 4 as A.C.2.

AIRCRAFT COMPANIES'

ON balance for the month there has been a marked decline in industrial shares, but no heavy selling has developed. The lower prices reflect the marking down of quotations by dealers to a level calculated to keep selling within moderate limits. Towards the end of the month there was evidence that the lower prices were bringing in buyers, and the resumption of option dealings tended to increase the interest of professional operators in the stock and share markets. The shares of aircraft and allied companies have naturally reflected the general market tendency, but relatively they appear to have held up very well in the circumstances. The increase in the dividend of Fairey Aviation from 7 per cent., tax free, to 10 per cent., tax free, came as a pleasant surprise to the market, which, while anticipating larger profits, was not unanimous in looking for a higher dividend. The shares jumped to 15s. 7½d. before the announcement of the dividend, and after reacting to 14s. 6d. on profit taking, showed some recovery later on the publication of the full report, which discloses an increase in profits from £169,964 to £184,585. The dividend is again a very conservative payment. Little business has been recorded in de Havilland, but the shares were a firmer market on the maintenance of the dividend at 5 per cent. Trading profits are little changed at £76,745 against £78,789. Activity has increased in Handley Page preference shares during the month, and a fair amount of business has been reported around 11s. 7½d. On balance the price is little changed on the month at 11s. 3d. The point to which attention is being drawn in financial circles is the participating rights carried by these shares and the substantial payments which the company stands to receive in due course in respect of its slotted wing and other patents. Petters ordinary and preference shares were not quotably affected by the decision to defer consideration of the payment of the half-yearly dividend on the preference shares for three months. This company's shares are held tightly (the chairman and directors are believed to be very large holders) and consequently they are at times not a particularly free market. Business has been recorded in the ordinary at 16s. and in the preference at 16s. 3d. D. Napier, which have again been steady, are 9d. down on the month at 5s. It continued to be argued that it is reasonable to suppose the dividend for the year will at least be such as to give a reasonable return on the shares at their present price. Rolls-Royce have gone back to 28s. 9d. As it is not the company's custom to pay interim dividends on its ordinary shares, nothing in the nature of an official indication of progress can apparently be expected until the annual report appears, and there is consequently uncertainty regarding the dividend for the year in view of the conditions which have ruled. For 1930 the 10 per cent. dividend was earned with a margin of profits sufficient to have paid nearly 5½ per cent. additional. Imperial Airways have gone back. Ford Motor have been a very weak spot and have not shown much recovery from the low price to which they were marked down on the incorrect rumour that work on the Dagenham works was to be suspended. The rumour was given an immediate official denial. Armstrong Siddeley preference shares were marked up on the company's good report, which showed an increase in profits from £132,367 to £164,986; this represents very good "cover" for the preference dividend, which requires only £52,000. The company controls W. G. Armstrong Whitworth Aircraft and A. V. Roe & Co., aircraft manufac-

During the earlier part of their training, the members of this class did not show the keenness and application considered desirable. During the latter part of their course, however, they have worked well, and have attained, on the whole, a satisfactory standard.

In education, the average marks for the entry were well up to standard and one candidate passed with distinction.

The Medical Officer considers that the general health of all the aircraft apprentices may be considered satisfactory. There has been no outbreak of an infectious nature during the period.

A cadetship has been offered to Sqdn. (Sgt.) Apprentice G. Thripp, winner of the "Hyde Thomson" Memorial Prize, which is awarded to the aircraft apprentice who obtains the highest place in the passing-out examination and is awarded a cadetship at the R.A.F. College, Cranwell.

STOCKS AND SHARES

turers. The lower prices for S. Smith & Sons (M.A.) preferred and deferred ordinary reflect the "cuts" in the dividends on these shares. The preference have also been lowered to 15s., but it is doubtful if they could be obtained in any amount around the price indicated by the current quotation. Joseph Lucas declined fairly heavily during the month (from 68s. 9d. to 60s.) but no very heavy selling has been reported. The interim dividend is not due to be announced until next April. Triplex Safety Glass have also reflected the general market tendency during the month. It is being suggested that the company may recommence the practice of paying interim dividends, but there is, of course, no official sanction for this. Dealings have taken place in National Flying Services at 3½d. Oil shares have been weak.

Name.	Class.	Nominal Amount of Share.	Last Annual Dividend.	Current Week's Quotation.
Anglo-American Oil ..	Deb. Stk.	£1	5½	97
Armstrong Siddeley Develop ..	Cum. Pref.	£1	6½	15/-
Birmingham Aluminium Castg.	Ord.	£1	5	18/6
Booth (James), 1915 ..	Ord.	£1	15	39/9
Do. do. ..	Cum. Pref.	£1	7	22/6
British Aluminium ..	Ord.	£1	10	22/6
Do. do. ..	Cum. Pref.	£1	6	18/1½
British Celanese ..	Ord.	10/-	Nil	9/3
British Oxygen ..	Ord.	£1	8½	13/9
Do. do. ..	Cum. Pref.	£1	6½	18/9
British Piston Ring ..	Ord.	£1	10	25/-
British Thomson-Houston ..	Cum. Pref.	£1	7	23/-
Brown Brothers ..	Ord.	£1	10	22/6
Do. do. ..	Cum. Pref.	£1	7½	21/3
Dick (W. B.) ..	Cum. Pref.	£10	5	116/3
De Havilland Aircraft ..	Ord.	£1	5	15/-
Dunlop Rubber ..	Ord.	c	6	14/6
Do. do. ..	"C" Cum. Pref.	16/-	10	12/6
En-Tout-Cas (Syston) ..	Def. Ord.	1/-	Nil	1/-
Do. do. ..	Ptg. Pfd. Ord.	5/-	8	3/1½
Fairey Aviation ..	Ord.	10/-	10*	14/9
Do. do. ..	1st Mt. Deb. Stk.	8	8	105
Firth (T.) & John Brown ..	Cum. Pref.	£1	6½	8/6
Do. do. ..	Cum. Pref.	£1	5*	8/6
Ford Motor (England) ..	Ord.	£1	10	27/6
Fox (Samuel) ..	Mt. Pual. Stk.	5	5	72½
Goodyear Tyre & Rubber ..	Deb. Stk.	6½	6½	99½
Handley Page ..	Ptg. Pref.	8	12½	11/3
Hoffmann Manufacturing ..	Ord.	£1	Nil	16/3
Do. do. ..	Cum. Pref.	£1	7½	15/-
Imperial Airways ..	Ord.	£1	3	13/6
Kayser, Ellison ..	Ord.	£5	Nil	55/-
Do. do. ..	Cum. Pref.	£5	6	77/6
Lucas (Joseph) ..	Ord.	£1	20	60
Napier (D.), & Son ..	Ord.	5/-	15	5/-
Do. do. ..	Cum. Pref.	£1	7½	20/7½
Do. do. ..	Pref.	£1	8	17/6
National Flying Services ..	Ord.	2/-	Nil	-/4½
Petters ..	Ord.	£1	6	20/-
Do. do. ..	Cum. Pref.	£1	7½	18/9
Roe (A. V.) (Cont. by Armstrong-Siddeley Devel., q.v.)	Ord.	£1	—	—
Rolls-Royce ..	Ord.	£1	10	28/9
Smith (S.) & Sons (M.A.) ..	Def. Ord.	1/-	Nil	1/6
Do. do. ..	Ptg. Pfd. Ord.	£1	7	13/9
Do. do. ..	Cum. Pref.	£1	7½	15/-
Serck Radiators ..	Ord.	£1	15	30/6
"Shell" Transport & Trading ..	Ord.	£1	17½*	35/-
Do. do. ..	Cum. Pref.	£10	5	£9
Triplex Safety Glass ..	Ord.	£1	10	27/6
Vickers ..	Ord.	6/8	8	8/-
Do. do. ..	Cum. Pref.	£1	5*	17/-
Vickers Aviation (Cont. by Vickers, q.v.) ..	—	—	—	—
Westland Aircraft (Branch of Petters, q.v.) ..	—	—	—	—
Whitehall Electric Investmts.	Cum. Pref.	£1	7½	21/-

* Dividend paid tax free. B Rate per annum for nine months.
c £1 unit of stock. D Last xd. on March 19.

Air Signs

THE Civil Aviation Section of the London Chamber of Commerce have been advised by the Wandsworth and District Gas Company that they have now had an air

sign painted on a gasholder at each of their following stations: Mitcham, Sutton, Epsom, Kingston and Wandsworth. They also propose to have their new gasholder at Worcester Park, when completed, similarly painted.

THE ROYAL AIR FORCE

London Gazette, December 22, 1931.

General Duties Branch

R. Sorel-Cameron (P/O., Auxiliary Air Force) is granted a short service commn. as P/O. on probation with effect from and with seny. of December 9; Lt. C. John, R.N., is re-attached to R.A.F. as F/O. with effect from December 2, and with seny. of August 10, 1925; P/O. on probation M. Sorsbie is confirmed in rank (December 5); P/O. G. F. K. Donaldson is promoted to rank of F/O. (October 11). The follg. Sqd. Ldrs. are placed on the half-pay list, Scale A:—W. A. Coryton, M.V.O., D.F.C. (December 18); F. A. Norton (December 21). Lt.-Com. P. W. W. Wootten, R.N., F/O., R.A.F., relinquishes his tempy. commn. on return to Naval duty (January 3, 1930). (Substituted for *Gazette*, January 17, 1930.)

Stores Branch

Sqd.-Ldr. A. B. Wiggin is placed on retired list (December 21).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

F/O. J. R. Cox is transferred from Class C to Class A (December 11); F/O. G. B. Shields is transferred from Class AA (ii) to Class C (December 19);

F/O. E. L. Purdy, M.C., relinquishes his commn. on completion of service (September 16). The follg. relinquish their commns. on completion of service, and are permitted to retain their rank:—Flt.-Lt. G. E. Newton (October 18); F/O. W. E. Johns (October 15).

SPECIAL RESERVE

General Duties Branch

P/O. on probation C. N. Shaw is confirmed in rank (November 16), F/O. on probation J. V. Roberts is transferred to Reserve of Air Force Officers, Class C (October 27).

AUXILIARY AIR FORCE

General Duties Branch

No. 603 (CITY OF EDINBURGH) (BOMBER) SQUADRON.—P/O. R. Sorel-Cameron relinquishes his commn. on appointment to a short service commn. in the Royal Air Force (December 9).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified:—

General Duties Branch

Wing Commander J. B. Graham, M.C., A.F.C., to H.Q., R.A.F., Middle East, Cairo, for Personnel Staff duties; 12.12.31.

Squadron Leaders: H. W. Woollett, D.S.O., M.C., to R.A.F. Depot, Uxbridge; 9.12.31. G. W. Bentley, D.F.C., to R.A.F. Depot, Uxbridge; 15.12.31. S. E. Toomer, D.F.C., to R.A.F. Depot, Uxbridge; 29.10.31. R. S. Aitken, M.C., A.F.C., to No. 1 Air Defence Group H.Q.; 14.12.31. F. W. Trott, O.B.E., M.C., to No. 28 Sqdn., Ambala, India; 22.11.31.

Flight Lieutenants: F. H. Ronksley, to No. 14 Sqdn., Amman, Palestine; 27.11.31. J. A. Elliott, to No. 35 Sqdn., Birchem Newton; 13.12.31. M. C. W. C. Flint, M.C., to R.A.F. Depot, Uxbridge; 15.12.31. J. R. Wolley to H.Q., Fighting Area, Uxbridge; 5.12.31. H. S. Broughall, M.C., D.F.C., to R.A.F. Depot, Uxbridge; 1.12.31. R. Duncanson, to No. 54 Sqdn., Hornchurch; 11.12.31. F. H. Woolliams, to H.Q., R.A.F., Transjordan and Palestine, Jerusalem; 1.12.31. F. H. Cashmore, to R.A.F. Depot, Uxbridge; 26.11.31.

Flying Officers: M. N. Oxford, to No. 55 Sqdn., Hinaidi, Iraq; 13.11.31. H. L. McCulloch, to R.A.F. Depot, Uxbridge; 15.12.31. H. L. Smith, to No. 57 Sqdn., Netheravon; 30.11.31. F. A. J. Pollock-Gore, to No. 57 Sqdn., Netheravon; 30.11.31. W. B. Thompson, to No. 57 Sqdn., Netheravon; 1.12.31. R. A. Byrne, to No. 57 Sqdn., Netheravon; 30.11.31. E. C. T. Edwards, to School of Naval Co-operation, Lee-on-Solent; 18.11.31. R. C. Field, to R.A.F. Depot, Uxbridge; 22.11.31. G. P. Longfield, to No.

504 Sqdn., Nottingham; 7.12.31. F. P. Hewitt, to No. 14 Sqdn., Amman, Palestine; 30.11.31. T. H. Downes, to No. 60 Sqdn., Kohat, India, instead of to No. 39 Sqdn., Risalpur, as previously notified; 16.10.31.

Pilot Officers: M. V. M. Clube, to No. 18 Sqdn., Upper Heyford; 25.11.31. E. J. Gracie, to No. 18 Sqdn., Upper Heyford; 30.11.31. N. C. S. Rutter, to No. 18 Sqdn., Upper Heyford; 7.12.31. G. L. Best, to No. 3 Flying Training School, Grantham, on appointment to a permanent commn; 26.11.31. R. Sorel-Cameron, to No. 16 Sqdn., Old Sarum, on appointment to a short service commn; 9.12.31.

Stores Branch

Squadron Leader K. D. G. Collier, to Station H.Q., Manston; 12.12.31. N. R. Fuller, to No. 22 Group H.Q., S. Farnborough; 22.12.31.

Flight Lieutenants: C. W. Rugg, to No. 22 Group H.Q., S. Farnborough; 14.12.31. L. J. V. Bates, to Air Ministry (D. of E.); 10.12.31. V. B. Ranford, to H.Q., R.A.F., Middle East, Cairo; 1.12.31. F. D. D. Gaussen, to No. 47 Sqdn., Khartoum; 24.11.31. J. Davison, to Station H.Q., Donibristle, 18.12.31.

Flying Officer: M. E. O'B. Atkinson, to No. 35 Sqdn., Birchem Newton; 9.12.31.

Accountant Branch

Flying Officer W. S. Calder, to R.A.F. Depot, Uxbridge; 15.12.31.

Medical Branch

Flight Lieutenant T. V. O'Brien, to R.A.F. Depot, Uxbridge, 22.11.31.

AIR MINISTRY NOTICES

NOTICE TO AIRMEN, SERIES A

No. 70 of the year 1931. "Outside Looping" and "Bunting." (150384/31)

The present standard of structural strength to which aircraft in the acrobatic category are required to be built, does not specifically provide for the loads which may be thrown on the aircraft during "outside looping" or "bunting."

By "outside loop" is meant a loop in which the pilot is on the outside of the circle described, instead of in the inside as in the ordinary loop, and by "bunting," the execution of half an outside loop followed by a half-roll.

The amendment of the structural strength requirements to permit these manœuvres is under consideration. Pending the issue of definite regulations, these manœuvres should not be carried out on civil aircraft of any category.

(December 22, 1931)

NOTICES TO GROUND ENGINEERS

No. 77 of the year 1931. Engine Installation Requirements: Dual Ignition Apparatus. (143530/31.)

Attention is drawn to the fact that the requirements of paragraph 1, Design Leaflet C. 7, Air Publication 1208, will be brought into effect in respect of all applications for Certificates of Airworthiness as follows:—

(a) Applications for Type Certificates of Airworthiness as from the date of issue of this Notice.

(b) Applications for subsequent Certificates of Airworthiness after 1st November, 1932.

(c) Applications for renewals of Certificates of Airworthiness after 1st November, 1933.

The requirements of paragraph 1, Design Leaflet C. 7, Air Publication 1208, are as follows:—

"1. General.—Engines installed in aircraft of the Normal and Acrobatic Categories, sub-divisions (a), (b), (c) and (e), must be fitted with dual ignition.

Note.—Dual ignition is defined as the provision for each cylinder of two separate systems of ignition which shall be independent (except for the actual engine drive), so that the failure of one shall not directly affect the functioning of the second."

(December 9, 1931.)

No. 78 of the year 1931. Locking Wires, Split Pins and Tab Washers. (150634/31.)

Cases have occurred where the slacking off of turn buckles, nuts, etc., have been attributable to the failure of the locking device employed. These failures have been due to the continued use of locking wires, split pins or tab washers after they have once been removed. On each occasion when it is necessary to disturb such locking device for the purpose of dismantling or adjustment it should be discarded and replaced by a new one.

December 16, 1931.

THE ROYAL AIR FORCE MEMORIAL FUND.

The last meeting of the Executive Committee of the Fund was held at Iddesleigh House, on December 9, 1931.

Sir Charles McLeod, Bart., was in the Chair, and was supported by the Deputy Chairman, Dame Helen Gwynne-Vaughan, G.B.E., and there was a very large attendance of members, there being only two absentees, both of them Service Members and detained on duty.

After the usual financial resolutions the Committee were informed of two very generous donations made to the Fund by the kindness of the Air Council in respect to part of the proceeds of the R.A.F. Display at Hendon in June last, and also some portion of the R.A.F. share of the profits derived from the Royal Tournament at Olympia.

It was notified to the Meeting that Air Marshal Sir Geoffrey Salmond, K.C.B., and Air Vice-Marshal R. H. Clark-Hall, C.M.G., had both accepted membership of the Committee. At the same time, the Committee heard with very great regret of the resignation of membership by Mrs. B. H. Barrington-Kennett, who has been a Member of the Executive Committee since its formation.

The question of doing something towards the cleaning of the R.A.F. War Memorial on the Victoria Embankment, London, was given very careful consideration by the Committee, but on the advice of the Architect, Sir Reginald Blomfield, it was decided not to do any work of this nature until at any rate, the early spring.

The Committee were informed that on Sunday, November 8 last, at the request of the Committee in the absence on duty of the Chief of the Air Staff, Air Marshal Sir Edward Ellington, K.C.B., Air Member for Personnel, laid a wreath, provided by the Fund, at the foot of the War Memorial with the usual brief ceremony, wreaths being at the same time laid by a representative of the Dominion of Canada and by Members of the W.R.A.F., O.C.A. and others.

The Committee were informed that since the Meeting held on October 7, 1931, to date, the Grants Sub-Committee and the Secretary have granted in relief of distress £1,886 7s. 7d.

It was also notified that the Fund, as usual, had furnished a wreath, which was laid on the Stone of Remembrance, High Street, Edinburgh, at the combined Service ceremonial held on Armistice Day, November 11.

The Secretary was directed to prepare the usual Annual Report for the current year. The Committee agreed to provisional dates for Meetings for 1932 as under. All Meetings to be held on Wednesdays at 3 p.m. on the following dates:—March 9, May 18, July 6, October 5, December 7.

The usual Meeting of the Grants Sub-Committee of the Fund was held on November 26, Mr. W. S. Field was in the Chair, and the other Members of the Committee present were:—Mrs. L. M. K. Pratt-Barlow, Air Commodore B. C. H. Drew, Mrs. F. Vesey Holt. The Committee considered in all 17 cases, and made grants to the amount of £375 13s. 1d.

At the Meeting of the Grants Sub-Committee held on December 11, Mr. W. S. Field was in the Chair, and the other Members of the Committee present were:—Mrs. L. M. K. Pratt-Barlow, O.B.E., Air Commodore B. C. H. Drew, C.M.G., Mrs. F. Vesey Holt. The Committee considered in all 20 cases, and made grants to the amount of £338 19s.

BOOK REVIEWS

"Aerial and Marine Navigation Tables," by John E. Gingrich (McGraw-Hill Publishing Co., Ltd.). Price 13s., post free, from FLIGHT Office.

"Our Fathers," by Alan Bott (W. Heinemann, Ltd.). Obtainable from FLIGHT Office. Price 9s., post free.

For the Mathematician

LEUTENANT GINGRICH, who at one time was instructor in navigation at the U.S. Naval Academy, Annapolis, shows us in his "Aerial and Marine Navigation Tables" how he considers that navigation tables should be laid out. Opinions will differ as to the merits and demerits of his ideas, for so many navigators have idiosyncrasies which it is impossible to overcome when the question of table lay-outs is discussed.

In this new work the author has collected nearly all the tables which can be wanted for ordinary astronomical navigation, whether it be carried out from an aircraft or from a ship, and to do so he has made good use of all available sources of information, such as the well-known authorities, Dr. Ogura, Mr. E. B. Collins and Lt. Com. P. H. Weems.

Bound in a flexible cover, it forms one of the most handy books of tables I have seen, but I feel that the type and lay-out might well have been somewhat more open and consequently clearer.

Victoriana Rediviva

MR. ALAN BOTT, well known to all readers of aviation literature as "Contact," has recently written a most unusual book, entitled "Our Fathers."

Under a series of headings he has grouped together a large number of illustrations which, together with the text, give his readers a comprehensive survey of the years 1870-1900. Many of these, it would seem more by accident than design, well bear out that time-worn adage that "history always repeats itself." In 1886, for example, we are reminded that unemployed rioting was a matter of "brutal violence and infamous rapine." Our present-day generation is far too prone to imagine that this problem is peculiarly their own.

Fifty years ago, we find that the costumes worn by British travellers were, as they often still are, "marvels of ugliness," and that, "wherever he goes, the average Briton carries his insular stamp."

In 1873, an engraving announces the "Proclamation of a Spanish Republic" . . . and so on.

Mr. Bott's text takes the form of a series of revues on the morals; State, Empire, and international occasions; the rise of woman; political and other matters. He writes through modern eyes, as witness his reference to the "Beachcombers" of the period, and at times he mixes humour with sentiment in a divertingly entertaining fashion, thus linking together the mass of pictorial matter to form what is certainly an unusual, but none the less "well-worth-having," history of the late Victorian period. "DAEDALUS."

PUBLICATIONS RECEIVED

Economic Conditions in Egypt, July, 1931. Report by R. M. A. E. Turner, O.B.E. Department of Overseas Trade. London: H.M. Stationery Office, W.C.2. Price 4s. net.

Practical Flying for Amateurs. Published for Shell-Mex, Ltd., by Simpkin Marshall, Ltd. Price 5s. net.

A Short Investigation of Contours and Surfaces of Gear Teeth. By H. F. L. Orcutt. Publication No. 16. The Gear Grinding Co., Ltd., Handsworth, Birmingham.

The Metallurgical and Research Laboratories of the English Steel Corporation, Ltd., Sheffield. English Steel Corporation, Ltd., Sheffield.

U.S. National Advisory Committee for Aeronautics Reports: No. 382, *Elastic Instability of Members having Sections Common in Aircraft Construction.* By G. W. Trayer and H. W. March. Price 25 cents. No. 383, *On the Theory of Wing Sections, with Particular Reference to the Lift Distribution.* By T. Theodorsen. Price 10 cents. No. 385, *Wind Tunnel Tests on Aerofoil Boundary Layer Control Using a Backward-Opening Slot.* By M. J. Bamber. Price 20 cents. No. 386, *Manœuvrability Investigation of an F.6C-4 Fighting Aeroplane.* By C. H. Dearborne and H. W. Kirschbaum. Price 20 cents. No. 387, *Vertical Wind Tunnel of the National Advisory*

Committee for Aeronautics. By C. J. Wenzinger and T. A. Harris. Price 10 cents. No. 388, *Investigation of the Diaphragm-Type Pressure Cell.* By T. Theodorsen. Price 10 cents. No. 389, *Effect of Small Angles of Yaw and Pitch on the Characteristics of Aeroplane Propellers.* By H. B. Freeman. Price 10 cents. No. 390, *Effect of Valve Timing upon the Performance of a Supercharged Engine at Altitude and an Unsupercharged Engine at Sea Level.* By O. W. Schey and A. E. Biermann. Price 10 cents. No. 391, *Aerodynamic Characteristics of Eight Very Thick Aerofoils from Tests in the Variable Density Wind Tunnel.* By E. N. Jacobs. Price 10 cents. No. 392, *Reduction of Turbulence in Wind Tunnels.* By H. L. Dryden. Price 10 cents. No. 394, *Airship Model Tests in the Variable Density Wind Tunnel.* By I. H. Abbott. Price 20 cents. No. 395, *A New Principle of Sound Frequency Analysis.* By T. Theodorsen. Price 15 cents. No. 397, *Drag Characteristics of Several Airships Determined by Deceleration Tests.* By F. L. Thompson and H. W. Kirschbaum. Price 10 cents. No. 399, *Flame Movement and Pressure Development in an Engine Cylinder.* By C. V. Marvin, Jr., and R. D. Best. Price 10 cents. National Advisory Committee for Aeronautics, Navy Building, Washington, D.C., U.S.A.

Bulletin du Service Technique de l'Aéronautique. No. 11, *Etude sur les Mouvements non Permanents des Avions.* By P. Baudoux. October, 1931. Institut Cartographique Militaire, Brussels.

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- 2,947. WRIGHT AERONAUTICAL CORPN. Yielding clutches. (362,748.)
5,636. C. R. M. A. DE ROUGE. Aircraft stabilizers. (362,776.)
8,352. S. SWITLIK. Parachute packs. (362,804.)

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